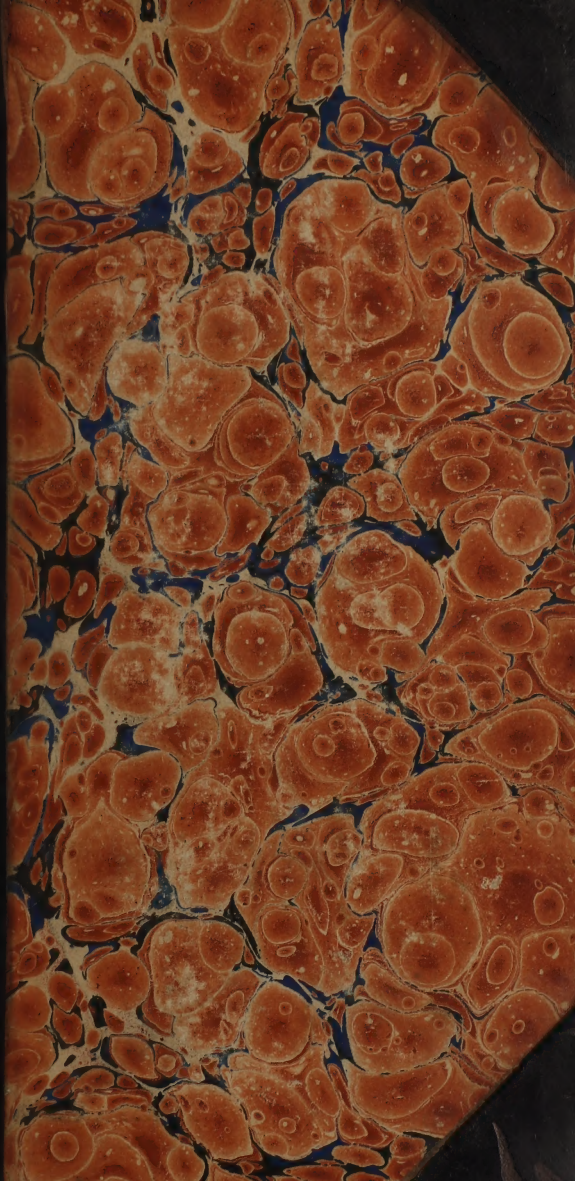




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Hugh Cecil Earl of Lonsdale.

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THROUGH THE SUPPORT OF

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AN
ABSTRACT
OF
THE PROCEEDINGS
OF THE
VETERINARY MEDICAL ASSOCIATION
DURING ITS FIFTH SESSION,
1840-41.

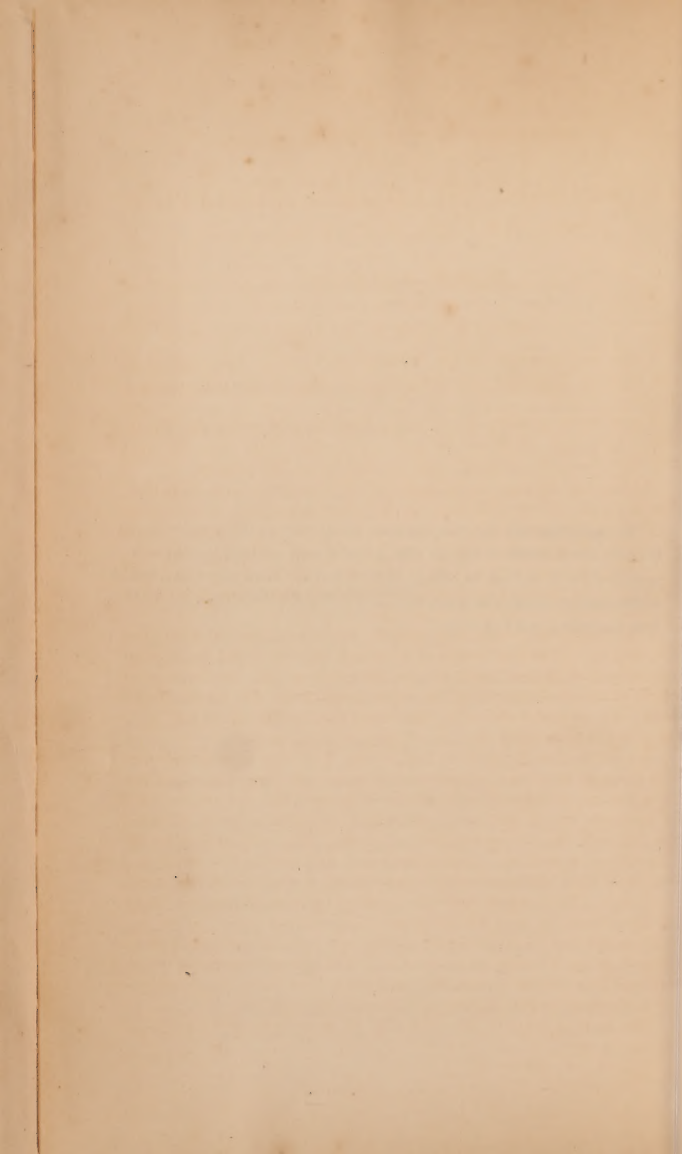
BY ORDER OF THE COUNCIL.

LONDON:
PRINTED FOR LONGMAN, BROWN, GREEN, AND LONGMANS,
PATERNOSTER ROW.

LONDON:

COMPTON AND RITCHIE, PRINTERS, MIDDLE STREET, CLOTH FAIR.

"It is quite time that *Veterinary Medicine* should cease to assert, and commence to prove; that it should re-examine what it has hitherto believed, together with its grounds of belief; and not be content, in these days of a better philosophy, with its ancient dogmas, or with what it acts on from habit, but with that alone which it adopts from conviction."—M'CULLOCH.



AN
ABSTRACT OF THE PROCEEDINGS
OF THE
VETERINARY MEDICAL ASSOCIATION
DURING THE SCHOLASTIC SESSION 1840-41.

By Order of the Council.

NOVEMBER 2, 1840.

THE first meeting of the Veterinary Medical Association, in the Session 1840-41, was held this evening at the Freemasons' Tavern.

There were present, the Patron, Professor Sewell; the President, Assistant Professor Spooner; the Secretary, Mr. Morton; the Treasurer, Mr. Youatt; and the Librarian, Mr. Barth.

Among the visitors were Professor Wilson, Mr. Lee, M.R.C.S., the Rev. Mr. Sims, Mr. Hareon, Mr. A. Sims, and several others.

Among the practitioners we observed Messrs. Daws, Ernes, Godwin, Higgs, F. King, jun., T. Mayer, Murch, Plomley, Silvester, Simonds, Snewing, Sparrow, Turner, T. Turner, and Watts. A considerable number of Students were also present.

The President occupied the chair.

The Secretary announced that it was customary to open the Session by rewarding merit, than which nothing could be more in accordance with the spirit of the Association and the feelings of those to whom its direction had been committed. He would, therefore, first present to the President the prize medal which had been awarded to Mr. LITT, for his "Essay on the Teeth."

The President begged to assure Mr. Litt that it afforded him the greatest degree of pleasure to be the means of conveying to him this reward of industry and talent. He had had the opportunity of perusing this prize essay, and could honestly say that it reflected on Mr. Litt the highest degree of credit. The subject was an interesting one, and had been treated as it deserved. If it contained but little of a practical nature, this afforded a proof of Mr. Litt's discretion. His proper study was now the anatomy and physiology of the parts: the time would come when, without presumption, his anatomical and physiological knowledge might be honourably employed in the alleviation of disease. The proper discretion which he had here exercised was an assurance that he would hereafter be an honour to the profession which he had adopted.

The prize Essay of Mr. Litt will be most naturally introduced in this place.

AN ESSAY ON THE ANATOMY AND PHYSIOLOGY OF THE TEETH OF DOMESTICATED ANIMALS.

INTRODUCTION.

THERE is not, perhaps, within the whole range of physiological inquiry a function of the animal body more interesting or more intricate than that of digestion; or which has occupied more the attention of those whose province it has been to investigate the most beautiful of all laws—those of the animal economy; and *most* beautiful because forcibly evincing the wisdom and design of a benevolent Creator.

Until within late years little was known of the true functions of the digestive apparatus, and that little confined to one animal, man; but the more careful and scientific examinations of comparative anatomists, and the recent discoveries of chemistry, have now enabled the physiologist to rescue from its former darkness and doubt this most important system, and thus to afford to the contemplative and enlightened mind another object for its study and admiration.

I have called the digestive system the most intricate and interesting of all those into which the animal frame is divided, and certainly I was right in so doing.

It is the most interesting, because it is that upon which we are dependent for existence—it is that by means of which substances, apparently so different in constitution, become converted into materials for nourishing and building up the animal frame; and upon a derangement of which most of the diseases under which animals so frequently suffer, nay, even perish, derive their principal power to injure or destroy.

They are also intricate because, with the variety of food on which animals subsist, we constantly find variations of structure: so beautifully and perfectly are all things adapted to the circumstances by which they are surrounded! It is true that only a small part of this system can form the subject of the following essay; but it is, nevertheless, a portion of considerable importance—one, in fact, to which I feel myself incapable of doing justice; and therefore, it may be said, one with which I ought not to have meddled. Let it, however, be borne in mind, that

“In great attempts ’tis glorious e’en to fail;”

and I therefore hope that my ambition will be considered laudable, although I may not be fortunate enough to reap any other glory than that of failure.

A solid body undergoing solution is said to be under the influence of two opposing agencies—the law of affinity which the fluid has for the solid body on the one hand, and the attraction of aggregation existing between the particles of the solid itself on the other. Admitting this to be true, it is plain that whatever tends to diminish the force of one of those laws will, in a definite ratio, increase that of the other. Hence it is that the chemist pulverizes his solids before adding the solvent; and hence also we find that nature has given to animals those powerful engines of manducation, the teeth; and that, as will be seen hereafter, in proportion to the density of the substances to be comminuted are the engines rendered more complex and perfect.

Although a consideration of the structure of the lowest division of animals is considered rather the duty of the natural philosopher than of the anatomist, and forms no part of my subject, yet, as their peculiarities are interesting, and as some of them may serve to elucidate remarks that I may have hereafter to make, I may, perhaps, be excused for taking a hurried glance at these animals, and of thus gradually paving the way to the nobler brutes that are to come more immediately under our attention.

In the animals which occupy the lowest rank in the scale of creation, namely, the Zoophytes, we meet with an organization for the functions of digestion very simple indeed, and consisting merely of little animal cellules or apertures for imbibition. Even in this class, however, we have a gradually increasing complexity of structure adapted to the circumstances of the animal, of which the tentacula, spread around the mouths—if I may be allowed the term—of such as have their food to seek, and by which it is entangled and secured, may be given as examples. These tentacula afford us the first and simplest specimens of prehensile organs. They evidently serve to fulfil, in these animals, the same functions that the hand does in man; and I am inclined to think that, like the mandibulæ of other animals, they compensate also, in some degree, for the want of teeth.

From the zoophytes we proceed to the Mollusca, in which we have a stomach and slightly convoluted intestines, and in which the compensatory organs are somewhat more perfected. In molluscan acephala, for instance, where the mouth is still nothing more than a sucking aperture, without jaws, tongue, or teeth, it is curious to notice the gradual approach to these organs. In the teredo the deficiency of teeth is supplied by some small pieces of shell; that of lips by small gill-like laminæ about the mouth in bivalves; and, lastly, that of the tongue by tentacula, or by transverse folds of the pharynx in the common oyster. In the Gastero-

poda the mode of taking in nutritive matter is much more perfect, as there are organs not only of suction, but also of mastication and deglutition; and, advancing still higher, in the crustaceous articu-
lata the feet, mandibulæ and maxillæ, become remarkable for their power of crushing the food: of which the claw of the crab will afford a familiar example. So perfect, indeed, are the teeth in the mandibulæ of insects, that, from a bare inspection of them, entomologists are enabled to state upon what particular species of food the animals subsist.

We now come to the division, Vertebrata—animals possessing a brain and spinal marrow; and there it is that the teeth assume a variety and perfection which is an undeniable proof of design. These organs in fishes appear to form a medium between the animal first noticed and those of the class Mammalia, as they have no definite place of attachment, being sometimes found on the jaws; at other times on the tongue, palate, and even in the pharynx. They seem, however, rather as the papillæ of the gums, &c., indurated and covered with a tooth-like substance, than any thing else; for they only become gradually connected with the bones over which they proceed. A beautiful construction evident in the teeth of most fishes, and which may be very easily demonstrated in the pike, is the presence of a kind of membranous retractile sheath which surrounds them, and the functions of which are too obvious to need explanation. The teeth of fishes are also of a hook shape in most cases, although there are some instances in which their forms are nearly as various as their situations, while there are others in which they are entirely wanting; for in the teeth, as in every other member or tissue, we find fishes in some particulars but little removed from animals still lower in the scale of creation, while there are others that bear considerable resemblance to the higher orders of vertebrata. So delicate are the links of animal life, and so gradual is the progression of nature!

In the teeth of fishes it may also be stated, as a general rule, that we meet with an arrangement calculated rather for lacerating and holding than for masticating the food; and this remark will be found equally true with respect to amphibious animals.

In birds we have but little need of teeth. The compensating organ here is the gizzard—a viscus so wonderful in its structure, and so perfect in its functions, that a ball of glass is comminuted to powder within its grasp. The jaws, or, as they are most commonly called, the bill of the bird, serve merely to form an organ of prehension, and are, for the most part, destitute of teeth. In most aquatic fowls the bill contains small tooth-like projections on its horny covering—not, however, firmly fixed to the bones—in fact, mere serrated

edges, to allow the fluid to filter through while the solid remains in the mouth, as will be clearly seen by an examination of the bill of the duck.

Having thus glanced at the teeth of animals up to the class mammalia, I approach the confines of my subject; and, as nothing tends so much to perspicuity as a proper arrangement, I shall first speak of

THE STRUCTURE OF TEETH.

Considering the different animals of the class mammalia, the different countries in which they are found, and the various circumstances by which they are surrounded, it will be readily seen that the organs of digestion must be varied in order to adapt each to its natural instincts; and that it will be necessary, also, for those of manducation to assume different forms in different species of animals. With such a degree of order and precision has this been effected, that he is but a poor anatomist who cannot, from the inspection of a single tooth, describe the habits and peculiarities of the animal to which that tooth belonged. For, supposing a tooth covered completely with enamel to be placed in my hands, and I find it of an irregular shape, and presenting one or more sharp projecting surfaces, I immediately conclude that it belonged to a carnivorous animal; that, as he fed upon other animals, he must have possessed the best means of capturing them; that his feet were armed with claws—his form agile and strong—his powers of hearing and smell of the highest order; in fact, I might go on *ad infinitum* with his peculiarities. Thus it is that, by means of science, we are enabled to fathom, as it were, the depths of creation, and from an investigation of the atom, to comprehend the system of which it formed a part: so true and undeviating are the arrangements of Providence!

Teeth are found to be composed, for the most part, of two, but in some instances of three different substances, to which have been given the names of *ivory*, *enamel*, and *crusta petrosa*, or, as Mr. Bracy Clark terms the latter, *stereodont*. The two former are those which enter solely into the composition of all the teeth of carnivorous quadrupeds and man, and into the incisors of all animals. The first substance, *ivory*, is that considered most analogous to bone, although it is of much greater density, and is produced in a very different manner. It is composed principally of phosphate of lime, with but little carbonate, and its animal constituents consist solely of albumen and gelatine. It composes the entire teeth in some animals, and the tushes of the elephant and horse consist of nothing else. Generally, however, it forms a base merely, being protected, as in the carnivora, by a complete covering of enamel.

This substance, the hardest in the animal frame—so hard, indeed, as to be capable of striking fire with steel—is found to consist almost wholly of phosphate of lime, with no albumen, and but a small trace of gelatine, and is admirably adapted for withstanding the almost hourly attrition to which it is subject.

Another example of the economy of nature is also afforded by the peculiar arrangement of the fibres of this enamel, for it is fibrous, approaching almost to a crystalline structure. Break a tooth, and examine the direction of the fibres: they will invariably be found perpendicular to the surface of the ivory to which they are applied. Now, mark the beauty of this provision! The ends of the fibres being thus alone exposed to the friction of the substances on which they are made to act, the effect of that friction in wearing away the enamel is thus rendered as little as possible. In teeth of the most complex structure,—the molars of herbivora—is found, as I have just hinted, the stereodont, performing the office of a cement in uniting the enamel and ivory. It is the softest of the three constituents of the teeth, resembling ivory in its composition, but easily distinguished from that substance by its great opacity.

Having said thus much of the component parts of the teeth, let us now take a glance at the manner in which these parts are arranged in different animals, and more particularly in those used for domestic purposes. And, first, of

THE INCISORS.

The incisors, or cutting teeth, are those which occupy the front of the mouth, and by which the food is seized, cut, and taken into the mouth, in order to undergo trituration by the molars. They are divided into the body—that portion which protrudes above the gum; the neck—that which is immediately invested by the gum; the fang or root—the part occupying the socket; and the crown or cutting surface. In the horse they are six in number in each jaw, and their shape is different in him from those of any other domesticated animal, the ass and mule excepted. They are composed chiefly of ivory, but possess a pretty thick investment of enamel, which, covering the whole of the body of the tooth, becomes reflected over its crown, into the centre of which it dips deeply, forming a cavity termed the infundibulum, or, by horsemen, the mark, from the gradual disappearance of which we may calculate the age of the animal. In the young horse the outer or anterior surface is much more prominent than the inner, and the infundibulum deep. From this it will be seen that they must possess considerable power of cutting: but, as he advances in years, the crown becomes perfectly level, and the infundibulum obliterated, whence it is evi-

dent that their office must be rather that of tearing; and hence Mr. Percivall has been induced to quarrel with the term *incisors*, and proposes to substitute for it, *divellentes*.

In cattle the incisors are eight in number, and confined to the lower jaws, as, indeed, they are in all ruminantia; the folds of the buccal membrane in the upper jaw being rendered thicker, and so extremely dense over the inferior surface of the intermaxillary bone as to form a beautiful cushion, elastic and almost impenetrable. Against this the food is pressed, and cut, and torn, after having been seized by the tongue, which is armed, in these animals, with numerous papillæ, and of a length that admits of its being protruded to a considerable distance from the mouth, so that it is here, as in some other ruminants—the giraffe for instance—an organ of prehension. Numerous have been the suggestions of physiologists to account for this peculiar construction; but as I could not make them sufficiently intelligible without first explaining the structure of the stomachs, a task that would occupy too much of my space, I refrain altogether from a detail of them. Suffice it say, that I consider the conjectures of Mr. Youatt on this subject by far the most plausible. Speaking of the incisors of cattle, this gentleman, our principal authority on this subject, asserts that they possess a covering of enamel; but here I beg leave respectfully to differ from him. I have now lying before me several teeth taken from the mouths of different oxen; but in no one of them can I meet with any thing like enamel reflected over the crown, and I therefore conclude that they do not possess it, a fact to which I attach considerable importance, as upon this I believe their power to be mainly dependent.

It is known to comparative anatomists, that in all animals of the order, *rodentia*—the hare or rat for example—where we have but two incisor teeth, and these destined to gnaw hard and fibrous substances, the teeth are provided with only an anterior coating of enamel; the other part of the teeth consisting entirely of ivory, which becoming worn away sooner than the enamel leaves it to form a projecting edge, and thus the continual sharpness of the tooth is preserved. Now, I contend that the same provision obtains also in the ruminant, with this difference, that the ox's tooth being surrounded by enamel, a sort of double-cutting edge is preserved of a fineness certainly not equal to those of the rat or hare just alluded to, but still very considerable.

Another peculiarity about the incisors of the ruminant is their extreme looseness, which, although it seems a defect, is a manifest advantage; for, did they not possess some power of yielding, the beautiful pad in the upper jaws would often be in danger of laceration.

The sheep presents us with but little variation in his incisors

from those of the ox, with the exception that they are longer and more pointed, and consequently much sharper; a provision necessary to enable him to accomplish his object more perfectly, browsing so frequently as he does so near to the ground and on bare pastures. I may also add, that he is provided with an upper lip almost free from hair, and having a deep cleft in its centre.

In the dog the incisor teeth are six in number in each jaw, and somewhat peculiar in their form. The body of each tooth is divided, as it were, into three lobes, the middle of which is by far the most prominent—the lateral ones being merely small projections from the neck. The cause for this peculiar form of the teeth, to which M. Girard has given the name *fleur-de-lis*, I do not remember having seen glanced at by any writer on the dog. I am myself inclined to think that the lateral projections are for the purpose of keeping the cutting borders of the teeth apart from each other, and of thus affording them additional power. The incisors of the dog are not all of the same size, the corner ones being the largest in both jaws, particularly in the upper one, where they are also a little apart from the others. Girard has stated that the central teeth are the largest in the lower jaw; but an examination of the animal's mouth will soon convince any one to the contrary.

In the hog, also, the incisors are six in number in each jaw, but their forms are here so fantastic as almost to puzzle description; nor is the function which they are intended to perform more clear. Those in the lower jaw are long, round, and almost straight, while the upper ones, at least four of them, bear considerable resemblance to those of the horse. The corner upper incisors possess something of the *fleur-de-lis* form noticed in the dog, and are placed so near to the tushes as almost to obstruct their growth. "This struggle, as it were, between them," says Girard, "occasionally so interferes with the feeding of the animal, that he is almost starved. It is then necessary to draw the incisor, which is effected without difficulty or future inconvenience."

THE TUSHES.

The cuspidati, canine teeth, or, as they are most commonly termed, tushes, are, in the horse, four in number, two in each jaw, and commonly wanting in the mare. In shape they are conoid, pointed and long, and slightly curved, having a groove in their inner surfaces. Some have stated that they do not possess a covering of enamel; others, amongst whom is Mr. Bracy Clark, assert that they do; but I have never been able to detect it. The fact is, it was not wanted.

I have heard numerous conjectures as to the use of these teeth; some asserting that they were placed here merely to maintain the

uniformity of nature; others, that their function is solely that of filling up the long space between the incisor and molar teeth; others assert that they are organs of offence, while many have considered the fact of their not being found in the mare a sufficient objection to all these suppositions. The last, however, I do not consider to be a valid objection, for many male animals possess organs of offence entirely wanting in the female; in fact, it seems a beautiful law pervading nature, that, when danger threatens, the female should, rather than expose herself, seek—ay, and find too—protection from her more powerful mate! There is in the Museum of the College the head of a horse which died rabid, in which the canine teeth have been broken. This sufficiently explains their function.

In the ruminants these teeth are entirely wanting; but in the dog, where they much resemble those of the horse in shape, they are most formidable agents: as also in the hog, in which animal they take an inclination more outwards, and are much longer in the lower than in the upper jaw.

THE MOLARS.

In these teeth, more than in any other, we find a wonderful complexity of structure; for here it is most necessary. The substances on which animals feed are so various, that it would be impossible for one order of teeth to serve the purposes of every animal. The instruments which the chemist makes use of for reducing to powder his easily-frangible salts, would have little or no effect upon the fibres of his vegetable roots. The sharp tuberculous teeth of the carnivorous animal might, without the slightest effect, exhaust their power on the food of the horse; nor would those of the horse enable him to derive nutriment from a bare bone, as do the molars of the hyena, or fulfil the functions of those of the sea-otter, the remarkable rounded eminences of which so beautifully adapt them to the comminution of the hardest shells. In fact, there are no two classes of animals in which we find the molars of precisely the same form.

In the horse, they are twenty-four in number—six in each ramus of the jaw—and they gradually decrease in size from before, backwards. If we take one, separate from the bone in which it had been placed, and examine its upper surface, we shall perceive it to be composed of the three distinct substances before-mentioned; and we shall also notice on it two concavities, which fit into the convexities of its fellow in the opposite jaw. The enamel will also be observed to present a curious and somewhat convoluted appearance; in all parts projecting a little—a very little—above the

other constituents of the tooth, to the inner surface of which it will be observed to form nearly a complete border, dipping occasionally into its centre, through which it is seen to run in white undulating lines. The outer surface consists solely of stereodont, and the portions included within the waves of enamel are composed of the ivory. In the upper jaw, the molars differ slightly in size and shape from those of the lower, being broader, and having their crowns sloping inwards, while those of the lower jaw are inclined outwards. The effect of all these provisions, in more effectually grinding down the food, and favouring the lateral motion of the jaws, must be too palpable to need detail.

Anterior to the molars, especially in the upper jaw, is sometimes found a small tooth, by farriers called "the wolf-tooth," which is analogous to the bicuspidati of the human subject. It seems placed here merely to keep up the uniformity of nature; and though the farrier generally attributes many of the diseases under which the animal suffers to this little tooth while it remains in the mouth, and often sets about cruelly chiselling it out, he only affords us, by so doing, another proof of his ignorance, and of the necessity for the "schoolmaster's" presence amongst those who employ him.

In ruminants, we have a construction more wonderful still. These animals were intended for the food of man; and, consequently, it became necessary that they should extract from the food presented to them all the nutriment possible. How is this effected? The food, having been taken into the mouth, undergoes a slight mastication; and then, passing into the first division of the stomach, the rumen, becomes macerated and softened, and prepared for re-mastication. It is then taken up once more into the mouth, and—let us observe the organs to whose action it is now submitted!—the enamel here forms an entire border to the tooth, besides dipping into its centre; and, instead of running in irregular lines, as in the horse, its convolutions are arranged into the form of beautiful crescents. It is worthy of observation, also, that the crescents in one jaw are convex in an opposite direction to those in the other; so that, during mastication, the ridges are made to cross each other: an arrangement, the perfection of which cannot be surpassed. There is an humble imitation of it in the construction of the mill-stone.

In the dog, we find twenty-six molar teeth—twelve above and fourteen below: there being in the lower jaw, next to the tushes, two small supplementary ones, which are of a pointed, conical form, and slightly grooved on their inner surfaces. The three teeth immediately behind these, in each ramus of the jaw, enlarge as they proceed backwards. They are convex on their outer sur-

faces, and possess two grooves inwardly, having also something of the *fleur-de-lis* form: the posterior projection, being the more distinct and assuming a pointed appearance, makes a gradual approach to the form of the true carnivorous tooth, which is the first of the back molars, and which presents a beautiful pointed appearance, particularly in the upper jaw, being of an irregular shape, and slightly fluted on both its surfaces. In the lower jaw, the posterior portion of this tooth is tubercular, or rather, I ought to say, contains depressions, into which, when the jaws are closed, locks the tubercular surface of the fifth upper molar, which is a compound tooth, marking the tribe to which the animal belongs, and being, as Mr. Youatt justly remarks, "partly carnivorous, to seize the prey for his master's use, and partly an omnivorous one, that he may be able to assimilate himself to the food of the master he is to serve." The last molar in the upper jaw, and the last two in the lower, are small tubercular teeth. Of the hog I shall say but little.

He possesses seven molars in each branch of the jaws, all of which are slightly different in structure, and increasing gradually in size from the first to the last. The hog being omnivorous, his teeth bear no inconsiderable resemblance to those of man. They are such as to enable him to cut and tear fibres of flesh, or in some degree to comminute those of vegetables.

FORMATION.

If we examine the alveolar cavities of a fœtus three or four months old, we shall there find the germ of the future tooth in the shape of a small and extremely vascular pulpy mass, the parenchymatous substance of which is enclosed within a thin, delicate, and transparent membrane, and that membrane, in its turn, enveloped by another and stronger membrane, termed the *capsule of the pulp*.

From this pulp is sent off to its fellows on each side a small projection, in order that they may become continuous with themselves: an arrangement by which the vessels of one are made to contribute to the formation of the other, and thus the support of all insured. As the fœtus progresses in growth, so do these gelatinous masses gradually assume the size and shape of the future tooth; at which time the vessels, having no longer any office to perform on the pulp itself, commence depositing calcareous matter: those of the pulp that which forms the ivory, while those of the capsule are busy in laying down the enamel. This process of deposition, or rather, I might say, crystallization, is commenced on the prominent part of the crown, and gradually proceeds, layer after layer, over the whole of the tooth—the pulp shrinking or being absorbed,

in those places where the ivory is deposited, until it is found very small, and occupying only the cavity in the centre of the tooth. The fang now begins to elongate; and the crown, pressing against the bone and gum above, causes their absorption, and thus a path is cleared, when it makes its appearance—an instrument which no human ingenuity could have devised, much less have formed.

What has been already said will sufficiently explain the formation of the simplest kind of tooth; but the molar of the herbivorous animal is somewhat differently constructed. In the ruminant, we have to each tooth two or more distinct pulps with their capsules, surrounded by another pulp with its capsule, and hence the crescentic appearance which they present; but in the horse we have but one pulp, the capsule of which runs into it, as is seen in the enamel of the perfect tooth. There has been much difference of opinion as to the manner in which the stereodont is formed. I believe it is formed by the outer surface of the capsule, for I have never been able to distinguish any other membrane, as some are said to have done.

MODES OF SUCCESSION, CHANGES, &c.

It has already been observed, that the process by which the teeth are formed is a tedious and lengthy one; and it will also be seen that, as the jaws increase in size, the first, or, as they are most commonly called, the milk-teeth, will become too small for the functions which they are called upon to perform: and so it is, in fact. The milk-teeth are both too delicate and too small to serve the animal his lifetime; and, accordingly, it becomes necessary that he should be supplied with a second set; or, in other words, that the teeth should be changed.

The manner in which these changes are brought about is subject to much variation, and is also not a little curious. The elephant, for instance, is an animal that does not come to his full growth until he is thirty or forty years of age, and is said not to be at his best before eighty. He has also principally to subsist on vegetable substances, and these of an order requiring teeth of immense power; in fact, of such a size as not to admit of the old and new one being formed in the alveolar portion of the jaw at the same time. How, then, is the succession carried on in him? Why, simply thus:—As the front molars are worn away, those behind them are forced forwards by the growth of a new tooth at the back of the jaw; and this process, according to Roget, goes on continually, giving rise to a succession of teeth, each one of which is larger than that which preceded it, during the whole period of the animal's life. In this manner, also, the teeth of other animals of great longevity are preserved.

In the rodentia, the peculiarities of which order have been already noticed, the long chisel-shaped incisors are preserved in a state fit for use by a continued secretion and deposition of fresh layers both of enamel and ivory. In fishes, where there are several rows of teeth one behind the other, a new tooth is observed to raise itself forward as soon as one is lost. But in the amphibia, as has been observed in the crocodile, we have a still more curious process. The teeth of these animals are of a conical form, and it is necessary that they should be preserved of extreme sharpness. This is effected by numerous successions, and these carried on in a very singular manner. I have said that the teeth are conical, but they are also hollow, and the new tooth is formed in the cavity of the old one, and thus gradually assumes its shape, pressing against its walls, and producing absorption; so that the instant the old tooth is shed, the new one is in its place, and fit for immediate use.

In those animals, however, of which I am called upon more particularly to treat—in man, and in by far the majority of quadrupeds—there is but one succession of teeth; and hence we divide them into two kinds, permanent and temporary. The permanent teeth are formed much in the same manner as the temporary ones, and where they are intended to succeed others, in such a situation as by their growth to give pressure on the fangs of the temporary ones, producing their absorption, and thus clearing a path for their egress.

We are now brought to consider the periods of succession, and the changes which the teeth undergo in consequence of age. This is a difficult and extensive subject—one which has occupied the attention of every veterinary writer of note; nay, upon which separate volumes have been written, and therefore one on which it will scarcely be expected that I can say any thing new. First, then, of

THE HORSE.

At the period of birth, or shortly afterwards, the foal will have two incisors and six molar teeth in each jaw, and four additional incisors will be found making their appearance in a few weeks afterwards. At about ten months after birth the remaining four incisors appear, and at twelve months a fourth molar will be found cutting the gum in each ramus of the jaws. This is the first permanent tooth the animal gets. Previous to his becoming two years old another molar on each side (the fifth) will make its appearance, which is also permanent. At about two years and a half after birth the two central incisors, above and below, and the first molar on each side, give place to others; at three and a half the same occurs to the next incisors and molars; and between the fourth

and fifth year the corner incisors and the third molars are changed; about which time also the tusches appear, and the sixth or last molar.

The animal is now said to be full mouthed.

It is, perhaps, worthy of remark, that the teeth in the upper jaw mostly appear a little sooner than those in the lower; and also that the permanent teeth may be distinguished from the temporary ones by their being of a less delicate colour, larger, furrowed on their anterior surfaces, possessing little or no cervix or neck and deeper infundibula; and, lastly, by their projecting more outwards.

I have previously spoken of the infundibulum—the pit formed by the dipping in of the enamel on the crown of the tooth. It is by the wearing away of this pit in the lower incisors that we compute the horse's age until he arrives at eight. The mark, as it is called, has disappeared from the two central ones at six; at seven from the two next; and at eight from them all. After this we have no guide, nor indeed can this itself be called a distinct guide; for I have seen teeth from which the mark had disappeared when the animal was no more than seven years of age, and others of ten, eleven, and even twelve where the marks were still distinct. The fact is, *practical experience, and nothing else, can make a man a judge of the age of a horse*, and he who has this on his side, with caution and judgment, will seldom be far wrong. This is a subject the modifying circumstances of which are so numerous, that mere written rules will avail us nothing, and therefore I shall avoid them altogether. Girard has given us directions by which, he says, the horse's age may be determined up to twenty by the shape of the cutting surfaces. As a comment on his observations, I may state that he asserts that we shall find at sixteen the four central teeth triangular, and that I have seen scores of horses who had them of this shape at eight.

CATTLE AND SHEEP.

The mouth of the calf at birth contains generally two incisors, and the same number of molar teeth on each side. In the course of a month another molar will be found cutting its way, and the whole of the incisors will also have made their appearance. At eight months, according to Mr. Youatt, the central teeth are visibly less than the others, and they are smaller than the pair next to them; and so on until at eighteen months we find the whole of the incisors diminished in size, and the central ones, of course, the most diminished of all. At about the eighth month appears also a fourth molar, and at one year a fifth, when the first is shed, and a permanent one appears in its place. The second is shed at two years, and so on. About this time also the first two permanent incisors

appear; at three years the two next, and the same with the rest, until, at five, all are out, and up at six, at which time also appears the last molar, which is, of course, a permanent one.

After this period it is the general opinion that no definite idea can be formed of the animal's age by his mouth. Mr. Youatt, however, has laid down certain rules for determining it by the widening of the mark on the crown until ten, and they may be correct. They were until lately quite unknown in the north of England, and consequently I have not yet had an opportunity of practically testing them. Certain it is, however, that the mouth of a cow which has survived a dozen years may be easily detected from that of a much younger animal; for the process of absorption noticed in the stirk has then again commenced. The central teeth are evidently less than the others, and this process goes on gradually with the whole of the incisors as long as the animal lives. What has been said of cattle up to the age of six will apply with equal justice to the sheep; after which time his teeth gradually loosen and soon drop out, or are broken away, particularly where the pasture is close and scanty, as I have seen too plainly evidenced on the mountains of Cumberland.

THE DOG.

The whelp will be found to possess at, or a very short time after, birth the whole of his temporary incisors and tushes. They are slender and of an extremely delicate appearance. Protruding very rapidly, they assume all the appearances of the permanent teeth, detach themselves, and are speedily gone. The period of the appearance of the permanent teeth is said to differ in different dogs, those of the largest and strongest species generally appearing first. From my observations, however, on these animals—and they have been somewhat numerous—I am inclined to think that he will not err far who takes six months as his standard. The central incisors are the first to make their appearance; but the rest seldom fail to be up within a few days after. When they have assumed a certain height, the lobular form, spoken of as the *fleur-de-lis*, presents itself, by the wearing of which it is that we compute the animal's age. In the usual order of things, the central incisors in the lower jaw begin to be worn when the dog is from eighteen to twenty months old. Between two and a half and three years the middle ones undergo the same change; between three and four years the central ones of the upper jaw; and the little tushes at six years. These rules, however, must be modified according to the food and habits of the animal which we are examining.

The periods at which the molars appear are somewhat doubtful. Girard has stated that the temporary front molars are generally

found at the time of birth, or very soon after, and are changed between the second and third month; that the first back molar appears at six weeks; the supernumerary one, which continues but a short time, at eight; the second back molar at about the third month; and the last about the sixth. All this, however, Mr. Youatt has denied, but it is to be lamented that he has given us no data of their appearance himself.

“Who shall decide when doctors disagree?”

I candidly confess *my* inability, never having studied this part of the subject with a sufficient degree of minuteness. That Mr. Youatt is right in asserting that the supplementary molars remain as long as any others I am satisfied, as I have now lying before me the head of a dog which was nearly twenty years old at his death, in which these teeth are the most perfect of all; but I am not equally sure of his correctness with respect to the wearing of the anterior molars and their assumption of a conical form in age, as no such thing has taken place in the head referred to.

THE HOG.

The pig is born with two molars on each side of the jaw, and he is provided with all his temporary teeth when he is three months old. The supernumerary molars protrude at from five to six and a half months; and the first back molar is cut about the same time. The second back molar is cut at ten months, but the last commonly not until three years. The replacement of the second temporary molar takes place at sixteen months, and that of the first at two years old. The age at from six to ten months is known by the shedding and replacement of the corner incisors and tushes—from twenty months to two years, by the change of the middle incisor in both jaws and the formation of a black circle at the base of the tusk—and from two and a half to three years, by the protrusion of the adult middle teeth. After three years the age is computed principally by the growth of the tushes.

Before taking leave of this animal, it is but fair to state that I am indebted to M. Girard's edition of his son's “*Traité de l'Age, &c.*” for most of my information concerning his dentition.

ORGANIZATION, &C.—CONCLUSION.

Are teeth organic? is a question commonly looked upon as much more easily asked than answered. That celebrated physiologist, John Hunter, doubted, nay, denied the fact; and Bostock, if I mistake not, classes them amongst the extra-vascular parts of the

body, while other physiologists of no less celebrity have as strenuously argued that they possess nerves, bloodvessels, and absorbents. There is here such a clashing of the opinions of great men, that it may seem somewhat egotistical in me to hazard a decision. Be that as it may, however, I venture to premise that if any one will take the trouble to follow my directions, the question will be speedily set at rest. But, first, let us glance at the arguments which have already been made use of. The teeth, like the bones of the body, are capable of tumefaction and caries, and this analogy of the morbid conditions is assumed to prove a similarity of structure. Mr. Hunter, however, has had recourse to another mode of explaining them. "They are attributable," says he, "to congenital malformation!" But Mr. Hunter did not stop here; he sought also to prove his position by experiment. He fed an animal with madder, and found that those portions of the teeth formed during that time had acquired a red tinge, which never afterwards left them—a fact which, along with those of the incapability of teeth for receiving the finest injections, or of the reproduction of destroyed portions, is looked upon by many as conclusive.

In my opinion, however, these facts will admit of another explanation.—The two first I look upon as owing entirely to the minuteness of the vessels—the other to the extreme slowness with which the action is carried on, and, undoubtedly, to the low degree of vascularity which they possess, being even too low to admit of their assuming a new and increased action—a circumstance which we know to be so highly necessary for the reproduction of lost parts.

So much for the facts against; let us now look at those in favour of their being organic. Those adduced by the human surgeon are principally the following:—Teeth recently drawn, and transplanted into a fresh socket, become, after a certain time, possessed of all the qualities of other teeth; and there does not appear to be any doubt that union by real vessels takes place. In pulmonary consumption they become of a beautiful and most transparent milky whiteness; and in jaundice also they participate in the general yellowness of the body. And, lastly, in people who die of violent deaths they are sometimes slightly injected. However, lest even these facts should fail to convince any one; lest the specious and subtle disputant should still presume to doubt, and refuse his belief until convinced by actual and ocular demonstration, the veterinary surgeon is yet enabled to shew him that his positions are false. Let him observe the mouth of a young horse or cow—I care not which; let him notice the diminution which there takes place in the temporary or milk teeth—not a mere wearing away of the cutting surface, but a gradual lessening of the body of the tooth itself; in fact, an absorption of its substance;—I say, let him observe this narrowly, and the matter is set at rest.

Unhappily, there are few individuals who have not experienced the acute pain which results from an exposure of the nervous and vascular pulps which fill up the cavities of the teeth. I will not insult the judgment of my hearers or readers by dwelling on the necessity and beauty of this provision, although, I am sorry to say, I have heard them questioned. Pain is the great protector of the animal frame. This pulp in the molar teeth of the lower jaw derives its sensation and support from small branches given off by the inferior maxillary nerve and artery while traversing the foramen at their roots; and, in the upper jaw, from the infra-orbital artery and nerve. The tushes and incisors in the upper jaw are supplied by the anterior dental nerve, a branch of the superior maxillary; and, in the lower jaw, by the inferior dental, a branch of the inferior maxillary nerve.

Before concluding this subject there is another provision connected with the teeth which I must not forget to notice. They are situated in certain cavities in the jaw-bones, which, as I have before stated, are called the alveoli; and the joint which a tooth forms with its alveolus is said to belong to the class gomphosis, and the division of joints synarthrosis, because it is there fixed as a nail into wood. It is preserved firmly in its situation partly by the gum, which is inseparably united to it at its cervix, and partly by the vessels of the pulp.

I would also remark, that flat bones are said to be composed of two tables or plates, the interspace being filled up by a beautiful network of ossific structure, termed *deploe*. This structure is remarkably developed in the maxillary bones, and the teeth are in all cases surrounded by it. The use of this peculiar cancellated structure is, by the degree of elasticity which it produces, to prevent that jar and concussion which, from its proximity to the brain, would otherwise be the too serious consequence of mastication.

Sir Charles Bell, in speaking of the numerous offices which the human hand is made to perform, does not forget to mention it as an organ of expression. Had I not already far exceeded the bounds to which I had intended to limit myself, this is a subject that I could have loved to dwell on. The expressions which the teeth are capable of in man are almost as various as passions; and poets and painters have in all ages done justice to them.

Who has not owned how forcibly the divine writer has depicted despair when he speaks of the weeping and wailing, and *gnashing of teeth*? And who has not felt how forcibly they add to the "power of grace" when woman's parting lips reveal them,

"All pure and white, as her own pearl wreath?"

But in the lower animals they are capable of one expression only—that of ferocity: a circumstance not forgotten by Byron in his

description, in the "Siege of Corinth," of the dogs devouring the dead :—

"And their white tusks crunched o'er the whiter skull,
As it slipped through their jaws when their edge grew dull."

I now come to take leave of my subject. It has certainly occupied more time than I intended to devote to it; but I hope that time has not been spent unprofitably. I am fully aware of its many imperfections; but I trust that they will be dealt with leniently. It may be said, that I have merely strung together a bundle of facts, and can lay claim to nothing of my own but the thread that ties them. But such an accusation would scarcely be just. I have always preferred my own observations to the assertions of others. I have made but little use of hypothesis, and written but few sentences, of the truth of which I had not previously satisfied myself by ocular demonstration; add to which, that I have adopted such an arrangement as I thought most likely to lead to perspicuity: and I think it must be confessed that I have endeavoured to make the thesis as original as possible. However, no more of this. Whether the foregoing pages possess merit or not, defence, on my part, will be alike supererogatory. I, therefore, respectfully take my leave.

The President then exhibited to the meeting the medal which had been awarded to Mr. Hughes for his Essay on the same subject. He would not say that he lamented the absence of Mr. Hughes, for he was engaged at home on important professional business. He would, however, say, that few things would have given him greater pleasure than to have been enabled personally to present him with this well-earned tribute to his talent and his industry. He had closely observed this gentleman's career, and he had seen him always attentive to his duties—always at work—always eager in the search of truth. His Essay and Mr. Litt's were on the same subject, and well had it been treated by them both, but there was as much difference in the arrangement of the two as it is possible to imagine. He gave no decision on the comparative merit of these Essays; the candidates had well and zealously exerted themselves, and they both deserved their reward.

The following is the Essay as presented by Mr. Hughes:—

TO THE COUNCIL AND MEMBERS OF THE VETERINARY MEDICAL ASSOCIATION.

It is a duty imperative upon us to make ourselves conversant with the means of ascertaining, with some degree of precision, the ages of the different animals that we are called upon professionally to attend, and more especially those placed at the head of the list—the horse, the ox, and the sheep. After the adult age of these

animals, it is by practice alone that we can hope to speak with certainty as to their age, by frequent examination of those with whose age we are acquainted, and by careful comparisons of them.

When we have made ourselves proficient in the recognition of the age of certain of our domesticated animals, shall we be able to describe to others the means which enabled us to do so? I think not, and I am decidedly of that opinion. It is natural for a person to say, Why, if you know the age of the horse by examination of the mark, you must be able to tell me by what I am to be guided in my opinion. But it is not so; for after the horse has passed the age of ten years, there can be no specific rules laid down by means of which we can judge with any exactness, but we form our opinion by an examination and comparison of many circumstances.

I shall first describe the anatomy of the teeth; secondly, their appearance as indicative of the age of the animal; and, lastly, the physiology of the teeth.

What I have said of the functions of the teeth may be applied to all the different animals, with this exception, that in the incisors of the ruminant and the teeth generally of the carnivora, including the dog, the enamel forms a case for, but does not dip down into, the teeth, nor does it in the pig, which is an omnivorous animal.

The teeth may be defined to be the "instrument for the abscission and manducation of the food."

The horse, or *equus caballus*, and the ass, or *asinus*, belong to the family Solidungula, of the order Pachydermata, and so called from the thickness of the skins of many animals belonging to this order. The horse and ass have each forty teeth, twenty in each jaw, consisting of twelve molars, six incisors, and two tushes. The latter are but slightly developed in the mare. The number of the teeth, however, sometimes varies, instances occurring where there are only thirty-six, while the mouths of other animals contain forty-two. The teeth are the hardest parts of an animal body, and, in consequence of the first teeth being shed, and replaced by others that remain during the rest of the animal's life, they have been divided into temporary and permanent teeth.

As regards the exact time at which the rudiments of the teeth first appear in the fetus, authors are at variance, but it is generally thought to be about the third or fourth month. The first indication of this is the appearance of small vascular membranous bags or capsules, which at this time make their appearance in the alveolar sockets. Of these capsules there are in the cavities of the future incisors but one; in those of the molares in the upper jaw five; in the lower jaw there are four. In the pulp of the incisors we first distinguish several bony accretions, which com-

municate with a thin hard plate, that afterwards becomes the cutting surface. In a short time the upper border of this becomes reflected so as to form a portion of the *infundibulum*, which is completed by a similar reflection from the posterior surface of the now completed "face of the teeth." These bony spots continue forming until we have the "shell of the tooth," in which, as in a case, is deposited a pulpy matter. This matter now gradually diminishes in quantity, and its place is supplied by the harder constituents of the tooth, and the cavity in which it existed becomes in time obliterated. The fangs of the teeth are not begun to be formed until the other parts of the tooth are completed.

I shall now speak of the formation of the permanent teeth. A membranous capsule, very vascular, is found attached to the pulp of the temporary incisor teeth, and this sac goes on increasing in size until it requires a socket distinct from that of the temporary tooth. Were it not for a communication it has by a membrane, called, from its office, *gubernaculum dentis*, its connexion with the temporary tooth would be cut off. Attached to the roots of the molares by membrane is a gelatinous material, which is the rudiment of the future permanent teeth. These gelatinous accumulations deposit bony matter in the same manner as the incisor teeth, excepting, as I said before, that there are in the grinders four or five sacs instead of one. Each of these capsules sends a process upwards into the body of the tooth, which process corresponds with the eminences on the surface of the molar teeth.

The membrane that secreted the pulp is found to be double, and from its outer surface it now secretes the enamel. This secretion is originally in a semifluid state, but gradually hardens, until it assumes the appearance which we find it to possess in the perfect tooth. This hardening, or, as it is by some regarded, crystallization of the enamel, takes place before the tooth leaves the gum, or, as it is technically called, is "cut."

We have seen that the teeth are composed of two substances, enamel and bone, or the ivory of the tooth. We have likewise seen that the molar teeth are composed, originally, of several processes; these portions are united by a third substance, called *crusta petrosa*, *substantia cornea*, or cement, which is found only in herbivorous animals. These constituents of the tooth are again encased in enamel, which, however, does not extend over the masticatory surface. These substances, taken together, are found by analysis to be composed of cartilage with gelatine, soda, chloride of sodium, carbonate of lime, phosphate of lime, fluoride of calcium (?), and phosphate of magnesia.

We divide a tooth into three parts. The crown is that part above

the gum and its upper surface, and is termed its face; the neck is the part immediately embraced by the gum, and the fang is that portion buried in the alveolar cavity. The incisors or nippers are twelve in number, and are divided into anterior, middle, and lower incisor teeth. They are arranged in two crescentic lines, or rather in the long half of an ellipse. They rarely vary in number, though, I believe, there are two or three specimens in the College museum of jaws with eight incisors.

These teeth are implanted in the alveolar sockets, which are cavities formed by transverse septa of bone, running from one table of the inter and submaxillary bones to the other. The walls composing these cavities are exceedingly porous, being pierced by innumerable foramina.

The incisors are from 2 to $2\frac{1}{2}$ inches in length, and are firmly fixed in their sockets with their fangs turned inwards and backwards. Their outer border forms one-third of a circle, and the internal one a fifth of a circle; the former of which is a segment of one measuring $2\frac{5}{8}$ inches diameter, the latter $\frac{3}{4}$ inch.

An incisor tooth is pointed at the extremity of its fang. The upper or facial surface varies with the age of the animal. Its body approaches the circular form, its neck is oval, and its fang somewhat triangular. The anterior superficies of an incisor offer to our notice one or two furrows, by which they may be distinguished from the temporary ones.

I spoke of the infundibulum when treating of the formation of the tooth. We now find its funnel-like cavity filled with cement or *crusta petrosa*, which is vulgarly called the *mark*.

It has, running from it, a longitudinal canal which proceeds to the point of the fang. The two anterior incisors are longer than the middle ones, and the middle ones are more developed than the corner ones. The anterior nippers are more upright than the middle ones, and these are less oblique than the corner ones. In a horse of six years old, the infundibulum of the anterior teeth of the lower jaw is from $\frac{3}{5}$ to $\frac{7}{10}$, the middle from $\frac{7}{10}$ to $\frac{4}{5}$, and the corner ones from $\frac{1}{2}$ to $\frac{3}{5}$ of an inch in length.

In the upper jaw the former are from $1\frac{1}{10}$ to $1\frac{1}{5}$; in the middle from $1\frac{1}{5}$ to $1\frac{1}{4}$; and the corner ones are from $\frac{4}{5}$ to nearly an inch. In proportion to their length, the breadth of the temporary teeth is greater than that of the permanent ones, but the longitudinal furrows are faintly developed.

The part of the tooth below the gum is closely invested with periosteum, which is reflected from the maxillary bone into the alveolar socket, and thence upon the tooth. This periosteum does not receive its blood in the same manner in which that membrane

does in general, but obtains it by means of vessels coming from the pulp of the tooth. The teeth are likewise bound in their places by their necks being embraced by the buccal membrane.

The molares are twenty-four in number, twelve in each jaw, and six on each side. They are placed at some distance—four inches—from the incisors. An upper molar tooth is as much as five or six times as large as an incisor one, and a lower one about four or five times as large. An upper tooth may be readily known from a lower molar tooth by its size. In length they are both from $2\frac{1}{2}$ to 3 inches, but in breadth the former exceeds the latter in the proportion of seven to four. The part exteriorly placed approaches nearly to a perpendicular; those in the middle inclining rather inwards, and the first pair taking an outward direction.

I will first speak of the upper grinders. On the external surface of the upper grinders, and in the first pair, an additional shallow one is added. These channels go on increasing in depth, but diminishing in width from before, backwards, with the exception of the first and last. Each of the grinders externally has two concavities and three convexities, excepting the first, which has three concavities and four convexities. The internal surface is not so deep as the external, and does not offer the like uniformity of appearance. We have the convexities more developed, but this is at the expense of the concavities. We merely find two (three in the first tooth) imperfectly formed canals, the middle convexity projecting beyond the others. The alveolar sockets taken together measure about 7 inches, $1\frac{1}{2}$ inch of which are occupied by the first tooth, $1\frac{1}{3}$ by the second, $1\frac{1}{3}$ by the third, 1 by the fourth, 1 by the fifth, and $1\frac{1}{8}$ by the sixth. These 7 inches multiplied by $\frac{7}{8}$ —the average breadth of the teeth—gives us $6\frac{1}{8}$ inches as the measurement of the masticatory surface, and this doubled gives $12\frac{1}{4}$ in each jaw.

The inferior molares, like the superior ones, increase in size from before backwards.

The exterior surface of these teeth offers to our notice a groove extending down the middle with a bulging out or convex portion on each side of it. This applies to all except the last, which has two grooves, and therefore three convexities. Their exterior surface is far from being so deep as the interior, and thus the internal edge projects beyond the external in the lower jaw, while the reverse is the case in the upper.

The internal surface of the inferior molares does not differ from the external. The grinding surface of these teeth is not so extensive as that in the upper jaw, their superficies measuring but $5\frac{1}{4}$ inches. We find the unworn molar tooth to present, for a considerable time, a very uneven surface; but as the animal advances in

years this surface becomes more smooth. The wearing surface of the lower molares is considerably narrower in proportion to their length than that of the upper ones. The faces of the first and last molares in each jaw are triangular, but the first much more so than the last.

We find the face of a molar tooth to be dissected into three portions by two transverse prominent ridges, and these portions are again subdivided by other processes of enamel. The interior of a molar tooth is hollow, and is partially divided into small cavities by processes from the upper part of the tooth.

The molares have all three fangs (with the exception of the posterior ones), two of which are outwardly placed, and the other inwardly. The latter offers its broad surface to the angular edges of the two former externally. The molar teeth of the upper jaw project considerably over the surfaces of the lower, varying from one-third to one-half of an inch; but the internal edge of the lower molars project a little beyond those in the upper jaw.

I have yet to speak of the *dentes canini*, or tusches. From their presenting to us but one fang, they are also called *cuspidati*. They are four in number, two in either jaw, and firmly implanted in sockets formed for them in the superior maxillary. These cavities are conical, the base forming the superior, and the apex being the inferior part. The anterior or upper canine teeth are placed about half an inch nearer the incisors than are those in the posterior maxilla. In figure they are slightly truncated double cones, their basis being united and embraced by the gum; but the general form of the tusches varies with the age of the animal.

When a tush first pierces the gum it is hollow, having a canal running from one extremity to the other; but this canal, like that in the incisors, becomes obliterated at an advanced age. A tush has no fang until it has passed the gum. The mare is said to have no tusches; but in all the skulls I have seen there have been small ones lying close up against the jaw in an oblique direction, and more developed in the posterior than in the anterior jaw. Our able and esteemed President, in his lectures on the teeth, relates some cases where mares have tusches developed nearly as much as we find them in male animals.

Underneath will be found Tables demonstrative of the ages of the horse, and shewing the number of teeth which he has at different ages:—

AGE.	Incisors.		Molars.		Numerical Order of Permanent Teeth.		Perman.		Temp.	
	Perm.	Temp.	Perm.	Temp.	Incisors.	Molars.	Incisors.	Molars.	Incisors.	Molars.
At birth or soon afterwards	—	2	—	6	—	—	—	—	4	12
From 2 to 5 weeks	—	2	—	—	—	—	—	—	8	12
— 8—10 mon.	—	2	—	—	—	—	—	—	12	12
— 1—2 years	—	—	1st.	—	—	4th.	—	4	12	12
— 2—2½ do.	2	—	2d.	—	Anterior	5th.	4	8	8	12
— 2—3 do.	—	—	3d.	—	—	1st.	4	12	8	8
— 3—4 do.	2	—	4th.	—	Middle	2d.	8	16	4	4
— 4—5 do.	2	—	5th.	—	Corner	3d.	12	20	0	0
— 4—5 do.	—	—	6th.	—	—	6th.	12	24	0	0

At 6 years the mark disappears from the anterior incisor of lower jaw.
 7 middle ditto.
 8 corner ditto.
 9 anterior incisor of upper jaw.
 10 middle ditto.
 11 corner ditto.

After eight years the faces of the incisor teeth gradually become oval, and from the oval form they advance towards the circular. As the age progresses this change from the oval to the circular is finished about the fourteenth year. After fourteen they assume the triangular figure. Besides the form of the faces of the incisors changing with the years of the animal, we likewise find a change in the angles of inclination of the teeth, they every year becoming more and more obliquely placed in the gums, until, in very old age, they nearly take an horizontal direction. I feel that I cannot do better than quote Girard on the appearance which the teeth present to us after the animal has passed his eighth year. He says, "at eight years old there is, most generally, complete obliteration of the mark in the lower jaw. The central enamel is triangular, and nearer the posterior than the anterior edge of the tooth, and the termination of the cavity next the root appears near the anterior edge in the form of a yellow band, extending from one side to the other.

At nine years the nippers become rounded, the dividers oval,
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and the corner teeth narrow; the central enamel diminishes, and approaches the posterior edge.

At ten years the dividers are becoming rounder, and the central enamel is very near the posterior edge, and rounded.

At eleven years the dividers have become rounded, and the central enamel is hardly any longer apparent in the teeth of the lower jaw.

At twelve years the corner teeth are rounded—the central enamel has completely disappeared—the yellow band is of more extent, and occupies the centre of the wearing surface; and the central enamel remains in the teeth of the upper jaw.

Thirteen years. All the lower incisor teeth are rounder—the sides of the nippers are becoming longish—the central enamel remains on the teeth of the upper jaw, but is round, and approaching the posterior edge.

Fourteen years. The lower nippers have a triangular appearance—the dividers are becoming long at their sides—the central enamel of the upper teeth diminishes, but still remains.

Fifteen years. The nippers are triangular—the dividers are becoming so—the central enamel of the upper jaw has not disappeared as yet.

Sixteen years. The dividers are triangular—the corner teeth becoming so—the central enamel of the upper jaw will frequently have disappeared.

Seventeen years. All the teeth of the lower jaw will have become completely triangular, and the sides of the triangle are equal.

Eighteen years. The lateral portions of the triangle lengthen in succession; first the nippers, then the dividers, and afterwards the corner teeth, so that at

Nineteen years, the lower nippers are flattened from one side to the other.

Twenty years. The dividers are of the same shape.

Twenty-one. This flattening appears in the corner teeth.

I shall now speak of the teeth of the ruminant, including the ox, the sheep, and the goat. I shall treat more minutely of the teeth of the SHEEP: and what is said of this animal may be applied to the other ruminating ones, excepting that the faces of the incisor teeth of the ox are not so oblique as those of the sheep, and consequently not so apparently extensive in proportion to the size.

The ox, sheep, and goat, have each thirty-two teeth, twelve molares and eight incisors in the inferior maxilla; and twelve molares, but no incisors in the upper jaw. Although these eight may be, and indeed are, incisor teeth, there is every probability that the outer teeth are modifications of what we call tushes or dentes

canini in many other animals; and what seems to bear out this opinion is, that in the camel (one of the ruminantia) the lower jaw has two teeth that are recognized as canines, and which are removed from the other six incisors. I allow that their office may be incisory, but their slender form and inferior development point them out as very different from the expanded form of the other incisors.

The eight incisor teeth are implanted in a fibro-cartilaginous substance in the lower jaw. There are no incisors in the upper jaw; but there is a contrivance compensatory for this in the addition of a dense fibro-ligamentous pad or cushion, covered by the membrane lining the mouth, and possessed of a considerable degree of elasticity. The fibrous substance in which the incisor teeth are implanted allows a degree of motion and flexibility. The anterior incisors are about an inch and a quarter long; the others somewhat less. They are curved inwards, and their upper surface varies from rather more than one-fourth to one-fifth of an inch. The exterior or corner incisors are considerably thinner and shorter than the others. The face of the exterior teeth does not extend more than a fourth part down to the gum, while that of the other extends nearly all the way, which gives to them a scoop-like appearance. The anterior surfaces of the incisors are somewhat flattened: they do not, however, present any grooves, as those of the horse, but, like the incisors of that animal, they have a hollow canal running from near their facial surface to the point of the fang. The incisory teeth of the horse form the half of an ellipsis cut in the direction of its axis, but those of the sheep form the section of one cut at right angles to its axis. In looking at the molares in the upper jaw, we find externally two large concavities, divided by a central perpendicular ridge, and, on their inner surface, two prominent convexities—corresponding to the hollows on the opposite side—separated by a central deep groove. This applies to all except the first, second, and last of each jaw. The first is very small, and presents a concavity externally, and convexity internally. The faces of the upper are hollowed, while those of the lower are pointed. The second in the upper jaw shews externally a concavity and another partially developed; its face is likewise hollowed, while the opposing tooth in the lower jaw is pointed. The last tooth in the lower jaw is peculiar in having an additional prominence internally, and appearing externally as though there were cemented to it a tooth similar to the first molar. The lower molares do not materially differ from the superior, excepting that their internal surface is more flattened, and the masticatory surface is narrower, and does not shew so many processes of enamel. The grinding surface of the molar teeth in the ruminant is much rougher than the same

part in the horse, arising from the softer nature of the ivory or bone of the tooth, and the harder and more fibrous nature of the food. Like those of the horse, the grinding surface of the teeth in the upper jaw inclines inwards and downwards, and those of the lower jaw upwards and outwards. Their masticatory surface measures about two inches and a half in each jaw. At birth, or very soon after, the lamb has two temporary incisor teeth.

The following is a table of their progress.

Age.	Temporary Incisors.		Permanent Incisors.		Situation.
Birth.....	2	—	0	—	anterior
1 week.....	2	—	0	—	1st middle
2d week.....	2	—	0	—	2d middle
3d week.....	2	—	0	—	corner
14 to 18 months..	0	—	2	—	anterior
2 to 2 $\frac{3}{4}$ years....	0	—	2	—	1st middle
3 $\frac{1}{2}$ to 4 years....	0	—	2	—	2d middle
5 years.....	0	—	2	—	corner

The age of the sheep after this period is rather difficult to be determined. The teeth are subject to decay, some rotting as early as six or seven years, others not till nine or ten.

The CALF at birth has either two incisors already through the gum, or is in the act of cutting them, and the process of dentition after, appears in the following table:—

Age.	Temporary Incisors.		Permanent Incisors.		Situation.
At birth.....	2	—	0	—	anterior
2 weeks.....	2	—	0	—	1st middle
3 weeks.....	2	—	0	—	2d middle
4 weeks.....	2	—	0	—	corner
2 years.....	0	—	2	—	anterior
3 years.....	0	—	2	—	1st middle
4 years.....	0	—	2	—	2d middle
5 years.....	0	—	2	—	corner.

After the beast has passed six months, the anterior incisors become smaller from wear and tear, and appear as though the other teeth were receding from them. About ten months the two next in order take on the same appearance; at fourteen or fifteen months the two next; and at about a year and a half the two corner ones. Their faces are now triangular, those of the corner teeth approaching nearest to the oval form.

At two years the animal cuts his first permanent incisor tooth, and completes the process of dentition at five years. After this

period the same thing may be said of the permanent as was described of the temporary ones, their faces gradually become rounder, and then triangular. It is by practice alone that the age can be estimated, and then not with very great precision by the teeth alone.

The HOG belongs to the order Pachydermata, and is an omnivorous animal. Pigs have generally twenty-four molares, twelve incisors, and four tushes; but the number of molar teeth is sometimes twenty-eight. The anterior surface of the incisors is broad, tapering from above downwards. The corner incisors are generally removed a short distance from the others, and, indeed, present altogether an appearance more like canine than incisor teeth, being truncated and conical. The tush, properly so called, is large and curved; its convex surface being presented forwards, and the concavity backwards. This, like the tush of the horse, is composed of two cones united at their basis. The molars present an appearance intermediate between those of the carnivora and herbivora; the crowns are tuberculated, and the anterior ones slightly compressed. The posterior molars are oblong, being one-half longer than the others. The enamel does not dip into the teeth as it does in the herbivora. I am unacquainted with any correct mode of ascertaining the age of the pig by reference to his teeth.

The DOG comes under the extensive order Carnivora, tribe Digitigrada, and subdivided into the family Canis.

The dog has generally 42 teeth, consisting of six incisors in each jaw, the two external ones being four times as large as the others; and two very largely developed canines. There are in each jaw two large irregular teeth called "carnivorous;" in the superior maxilla these teeth have two sharp-pointed prominences inferiorly, and a tuberculous portion internally. In the lower jaw the carnivorous teeth have no tuberculated portion on their internal surface; but they possess three eminences, the middle one reaching considerably lower than the anterior one, and the anterior more so than the posterior. The two former are sharpened, the latter is tuberculated.

Anterior to the carnivorous teeth there are, in the upper jaw, three, and in the lower, four teeth that are designated "false molars," having on their centre a projecting conical point, resting on two tuberculous shoulders. The false molars increase in size from before backwards.

Behind each carnivorous tooth, in both jaws, there are two tuberculous grinders. These teeth in the upper jaw are very large, much more so than the corresponding teeth in the lower jaw; but the eminences, which are three in number—two externally, and a large one internally—are rounded. The puppy obtains his full set of temporary teeth when about four or five weeks old.

It is by minute observation alone that we are enabled to tell the age of the dog by the teeth; and even then we frequently find ourselves at a loss, depending on the nature of the food the animal is fed upon.

The knowledge of the age of the dog consists essentially in noting the inclination of the angle formed by the upper surface or face of the incisor teeth as compared with the anterior, and the colour of the teeth.

The CAT, like the dog, belongs to the subdivision *Digitigrada*, of the order *Carnivora*. In the upper jaw we find six small incisors, the two corner ones being most developed. Behind, and near to the incisors, are two very large canine teeth, whose anterior border is more convex than the posterior one. They gradually taper to a point from the part embraced by the gum. They are slightly curved, their concavity being turned backwards. At some distance behind these teeth, we find the molars, consisting of two false, one carnivorous tooth three-lobed with a broad heel on its inner side, and one very small tubercular one on each side.

In the lower jaw we find the incisors and canine teeth similarly developed to those in the upper. We likewise find two false molars, one carnivorous tooth, with two points and cutting lobes, but without the broad heel of the upper one; nor is there any tuberculated grinder. The superior considerably overlap the inferior molars, and in such a manner, that the pointed process of one tooth is applied to the niche found between two of the opposing teeth in the other jaw. The incisors are in apposition when the jaw is closed; consequently the posterior edges of the lower canines are applied to the anterior surfaces of the superior ones; indeed, such is the development of these teeth, that the pointed process of one tooth is applied to the niche formed between two of the opposing teeth in the other jaw. The incisores are in apposition when the jaw is closed; consequently the posterior edges of the lower canines are applied to the anterior surfaces of the superior ones. The point of the lower tooth is extended as far up as the superior gum, and the upper proceeds to the same part of the lower jaw. The teeth are arranged in equilateral triangles, the anterior angle being removed. I am ignorant of any precise mode of ascertaining the age of the cat by reference to its teeth.

From the different nature and habits of the several families of our domesticated animals, we should be led to anticipate a difference of arrangement and structure of their teeth: some, as the horse and the ruminant, living entirely on vegetable food; others, as the dog and cat, in a state of nature, feed exclusively on animal flesh; while others, as the pig, partake of the nature of both, and are therefore omnivorous.

The action of the teeth is much influenced by the form of the articulation of the inferior or posterior maxilla. In the herbivorous animal we find the condyles rounded, so as to allow a considerable degree of rotatory or lateral movement. In the omnivora, and in the carnivora, this articulation forms a very striking contrast with the graminivorous quadruped. In the carnivorous animals we find the condyles so articulated and secured, that it is impossible for any degree of lateral action to be effected; in the teeth of herbivorous animals there is every thing calculated to comminute and finely grind down the food. The animal first crops, by partly cutting and partly tearing a portion of grass, which, by the assistance of the buccinator muscle, is carried between the molares by the tongue. The molares, in these animals, are very extensive on their masticatory surfaces, and only so rough or uneven as to ensure a perfect trituration and reduction of the food.

When we contrast the teeth of the carnivorous animal with those of the graminivorous, we cannot but admire the difference of structure beautifully calculated for the peculiar wants of each. In these we find them admirably adapted as means of offence and defence, so constructed as firmly to hold and secure their prey, and well arranged for grasping and tearing off their food. The molar teeth are pointed, so as to lacerate rather than comminute; and, indeed, we all know that these animals scarcely masticate their food at all.

We find the teeth of the omnivorous animal to occupy a place intermediate between these two, not possessing the extensive and comparative smooth surface of the one, nor the cutting edges and pointed processes of the other.

The teeth are subject to much attrition; and in consequence of this gradual wear, and the different form of different parts of the incisor teeth, with the conical figure of the infundibulum, it is that we are enabled to ascertain the age of the horse; for, as the tooth is worn away, so does the cavity diminish, until at length it disappears altogether; and the horse is then said to have lost the "mark."

The President observed that he had another very important and pleasing duty to perform;—to confer the degree of Honorary Fellows on those who had most distinguished themselves by the presentation of Essays during the last session. If those to whom this honour was about to be awarded were few in number, some of them had contributed Essays of superior and sterling worth: and first among them stood

MR. DAWS. Always ardent in a good cause, and ashamed of the manner in which the operation of castration was performed by those who had claimed the performance of it as a kind of right

descended to them, as it were, by inheritance, he, assisted by his friends, Messrs. Simonds and Wardle, had introduced the novel and simple mode of castration by *Torsion*. It had succeeded admirably in every case but one. He might go to the full extent of Mr. Daws as to the worth of the operation; while its scientific appearance, easiness of performance, and the torture from which the patient was saved, gave great value to the experiments; and he was happy to present Mr. Daws with the Certificate of Honorary Fellow of the Association.

The same honour was awarded to MR. BOTTLE, who was unavoidably absent, for his lucid and accurate description of the bones of the horse; and the like to MR. HUGHES, the successful author of one of the prize essays. The subject which he had selected was one to which scarcely any but a man of considerable experience and accurate observation, as well as a more than ordinary knowledge of chemistry, could do justice. He had acquitted himself nobly, and well deserved the honour that was conferred upon him.

Mr. Cartwright was also in the country superintending his practice, but he had left behind an Essay on that annoying and often fatal disease phlebitis, or inflammation of the vein after bleeding. The discussion on this subject occupied several successive evenings; many interesting facts were elicited, and some considerable light was thrown on certain points relative to this disease. He well deserved the certificate which would be transmitted to him.

Mr. Sibbald had selected a subject most difficult to be treated on, "Local Inflammation." In the early part of the debate he seemed disposed to adopt and to defend the peculiar notions of Majendie, but, ultimately, with a candour and degree of moral courage which reflected on him the highest credit, he acknowledged his error. He well merited the honour that was now conferred on him.

Last of all came Mr. Faulkner, whose subject much resembled that selected by Mr. Sibbald, but it was treated in a more practical way. To him the like certificate was awarded.

The Secretary then announced the subjects for Prize Essays during the ensuing year. That for Practitioners was—"Blood-letting, when demanded, and its consequences;"—and for Students—"Purgative agents, their mode of action, and effects on the system of the Horse."

Mr. Youatt was then called upon by the Chairman to deliver the ANNUAL ORATION.

He thus addressed the meeting :—

“Gentlemen :—What would have been the state of man had he not eaten

‘ The fruit
Of that forbidden tree, whose mortal taste
Brought death into the world, and all our woe,’

it is now bootless to inquire. He transgressed the ‘sole command,’ and from that day became subject to death, and all its antecedent evils and pains. ‘Fallen from his high estate,’ and suffering from ailments and apprehensions unknown before, it was natural for him to look anxiously around, and to inquire, on his own account, and more on account of those whom he loved, whether there were no means by which their sufferings might be alleviated and their lives prolonged.

“Hence the origin of THE MEDICAL PROFESSION. There were those who, from a long habit of observation, were able, or thought that they were so, to recognise the character of certain ailments—to trace them to their proper causes—to exercise some control over them, and occasionally to remove them altogether. Much uncertainty, however, would often attend the speculations of the early physicians, and they were compelled to have recourse to certain means of forming a right prognosis, which we should view with ridicule or contempt. Beneath the porticoes of their temples, and in the market-places and public ways, those who laboured under serious maladies were often exposed, in order that casual passengers, or others who were accustomed to meditate on scenes like these, might give their opinion on the nature and cause and remedy of the complaint. These opinions, and the result of the treatment, were regularly chronicled. We should deem this a most strange and inefficient way of studying medicine; but it was, perhaps, the best method that, in the circumstances under which the first practitioners of the healing art were placed, could be adopted.

“Chiron, Æsculapius, Aristotle, Plato, and a host of philosophers, studied in this school; and, at length, Hippocrates, three hundred and sixty years before the Christian era, so ably digested the knowledge thus obtained into a scientific form, that no important improvement or discovery was afterwards made, until the revival of learning in the seventeenth century.

“And what became of the inferior animals, when the schools of human medicine were thus honourably progressing? I would not have dared to delay you so long in this introductory portion of my address, if I could not have given a satisfactory answer to this question. They shared with the human being the attention and care of the philosopher. There was no distinction between the biped and the quadruped in this respect. There was no false pride,

to prevent any inquiry or any exertion that could terminate in the diminution of suffering and the prolongation of life. We often look back with delight on the long list of those who devoted themselves to the cultivation of the noblest art in which the human mind could be employed, and then, with what a burst of enthusiasm do we mentally exclaim—‘These men belong to us; they were the fathers of the art which we are now ardently and triumphantly pursuing!’

“As time passed on, it was found that the practice of medicine would advantageously admit of subdivision. There was sufficient for the study and employment of him who devoted all his care to the treatment of human disease; while the quadrupeds, more numerous and highly-valued, from the medical attention which had been paid to them, would, in certain districts at least, fully employ and remunerate their attendant. Thence the origin of THE VETERINARY SURGEON.

“This division of labour commenced in Greece, and prevailed there during several centuries. That excellent warrior, historian, philosopher, and veterinarian, Xenophon, materially contributed to the triumph of the veterinary art in Greece. Soon after his decease, however, it sunk into comparative obscurity. The sacred wars—abused term!—commenced. Civil discord pervaded every portion of Greece, and the records of veterinary lore for ever ceased to be of value in that devoted country. Rome was now beginning to assume a prominent station amidst the European kingdoms, but no record of the existence of the veterinary art, no history of the advancement of the science of human pathology, presents itself; and it was not until a very late period that we again hear of the existence and progress of either of them. Even when mention of them does occur, the corruption and servility of despotism were struggling with and destroying the intellectual character of both professions. Nothing remained but the remembrance of certain remedies which were infallibly used for the cure of certain diseases. The knowledge of these descended from father to son as an absolute right of inheritance, and medicine was exclusively practised by particular individuals or families.

“This was the case in every country of Europe. Willis, in his ‘Survey of Salisbury,’ gives a graphic account of the state of medicine in England. He tells us that ‘Atwell, a parson of St. Ive, in Cornwall, was well versed in the theorie of physicke; and, beside this, his judgment in *urines* cometh little behind the skilfullest in that profession. There were very few physicians; but there was one Rowe Cleyez, a blacksmith, eminent in physic, but furnished with no more learning than was suitable to his calling.’ Of the struggle of the medical profession to free itself from these

galling bonds, I will only say that there is not one of us who does not exult in its complete triumph.

“In our own country no effectual measures were taken to remedy the abuses that existed, with reference to the veterinary art, until nearly the close of the eighteenth century. The Odiham Society then nobly and honourably led the way, and proposed to send certain young men to the school of veterinary instruction that was established in the environs of Paris. In the meantime, however, one of the professors of that school arrived in Great Britain, and offered personally to undertake the superintendence of a similar establishment in the neighbourhood of the British metropolis. This was gladly acceded to by many persons of influence and scientific attainments, and the Royal Veterinary School of St. Pancras had its being. It was established under the noblest auspices; and it promised, in language that used to appear in prominent characters in the annual account of its proceedings, to be ‘a school of veterinary science, in which the anatomical structure of quadrupeds of all kinds, horses, cattle, sheep, dogs, &c., the diseases to which they were subject, and the remedies proper to be applied, might be investigated and regularly taught; in order that, by these means, enlightened practitioners of liberal education, whose whole study had been devoted to the veterinary art, *in all its branches*, might be gradually dispersed over the kingdom, on whose skill and experience confidence might be securely placed.’ Such was the word of promise, but miserably was it kept. This professor died in the second year of the establishment of the school, and was succeeded by two gentlemen, Messrs. Moorcroft and Coleman. The former a man of talent and of science, and already a practitioner of the art; the latter possessed of still superior talent, and of more than equal general knowledge, but untaught in the practice of the veterinary profession. These gentlemen, however, soon separated, and Mr. Coleman remained sole professor. The honours and emolument of this situation he continued to enjoy for nearly half a century. He has passed off the stage, and I will tread lightly on the turf which covers him.

“We owe to him the recognition and the establishment of the principle of ventilation in our cavalry-stables, and in those of almost every one who is engaged in the sports of the turf or the field. The system of management in the stables of the proprietor of the road and working horse was materially improved, and some of the most prevalent and destructive diseases to which the horse was subject were diminished in frequency and intensity. He was happy and instructive when treating of the foot of the horse. His illustrations were always pleasing, but not uniformly correct or useful; for there was an uncurbed love of theory about him,

which strangely and wofully misled both himself and his pupils. In addition to this, his attention was exclusively confined to the horse, and his school stood disgracefully alone amidst the veterinary establishments of Europe; never identifying itself with the agricultural interests of the country, or endeavouring to protect, in the slightest degree, the most valuable part of agricultural property.

“When his career was drawing to a close, a noble society sprung up, composed of the leading and best men of every party, and honestly and honourably devoted to the interests of agriculture. Let it be forgotten that he was adverse to the establishment of this noble undertaking, and adroitly endeavoured to neutralise its efforts. He has passed away! The English Agricultural Society, however, remains. It is daily increasing in estimation and influence, and sufficient power to accomplish every good purpose. It is willing to ally itself with us. It has already contributed to the funds of the College. It rightly calculates that the gross value of its cattle and its sheep is many times greater than that of the whole of our noble breed of horses; and, therefore, although it wishes not the slightest curtailment of the instruction which appertain to the horse, it demands, and, by-and-by, it will enforce that demand, that equal attention shall fairly, honestly, fully be paid to that portion of veterinary education which has reference to our flocks and herds. The time for half and delusive measures is now rapidly passing away. The public, the Agricultural Society, and the student, will demand that every pledge shall be honourably redeemed. *Can they, according to the present system, be thus redeemed?* It will be the part of wisdom seriously to put this question to ourselves.

“The veterinary surgeon will, in future, have to move in a very different circle from that which he has hitherto occupied. He will become identified with the agricultural interests of his country. The agriculturists themselves are becoming, or will soon become, essentially changed in many of their habits and proceedings. They are forming themselves into societies, in which their interests and their art will be frequently and closely canvassed. In the greater part of these societies, valuable libraries are forming, from which the farmer will learn more than he has been accustomed to do of the principles and scientific practice of agriculture. Many an old prejudice will gradually or rapidly wear away. Among their other stock, their horses, and sheep, and cattle, will be the objects of prominent attention. Their form, their food, their diseases, will be more closely investigated. At present, the farmer requires from the veterinary surgeon scarcely any thing more than a competent knowledge of the nature and treatment of the malady respecting

which he is consulting him ; but, by-and-by, the intercourse will be of a different kind, and the agriculturist will glory when he can enter into more useful and scientific conversation with the medical attendant on his stable or his cattle.

“ The education of veterinary surgeons must ere long be such as will qualify them for this new course of life—this extended and superior and systematic knowledge of their profession. Is a classical education needful in the aspirant to the veterinary profession? I will not say that it is indispensable ; but it will be highly useful. It is that which should most certainly be given if the means of the parent will permit it. It will bestow an accuracy of pronunciation, a propriety of expression, an enlargement of mind, a peculiar bearing and character, which will readily distinguish him from the illiterate, and will be a passport to society, into which he might otherwise find it difficult to obtain an introduction.

“ We should also have, as the consequence of such an education (and most desirable they are among us in our present degraded state), a greater number of those who unite the placid and elevated pursuits of science with the fullest occupation in their profession. There is no danger, as has been foolishly imagined, of the latter being sacrificed to the former ; but as the veterinary surgeon returns from them to the practice of his profession, he will exclaim with deep feeling,

‘ They were but my visits ;
Thou, neglected science ! thou art my home.’

“ Let not, however, the practitioner who cannot boast of this early advantage be dispirited. Let him not, despairing of a nobler rank in society, be found where

‘ Sit involved, and lost in curling clouds
Of Indian fume, and guzzling deep, the smith,
The ostler, and the groom ;’

but let his own occasional mortification teach him how his successor should be educated. At all events, a good sterling education, although a plain one, should be bestowed on every young man who is intended for our profession.

“ There is one inconvenience, however, to which the well-educated and scientific man may, for awhile, be exposed. From the simplicity, the safety, and the quick action of the means which he adopts, that which used to be the business of weeks is reduced by him to so many days ; a circumstance pleasing enough, one would think : but mark the frequent consequence ! Does the owner increase the fee for the pain and misery his horse has been spared ? Not a bit of it. ‘ There has been little or no work done ; no

trouble to the doctor,' he says; 'no pain to the patient, and therefore little to pay for.' But let an ignorant blunderer be six weeks remedying the effects of his own mischief; or, what is oftener the case, let nature triumph over bad practice, and see what gratulations and gratuities flow to the doctor. What must we do here? Why, patiently submit, but suffer not our honour to be sullied.

"I may, perhaps, be pardoned if I express a deep feeling of regret at the alteration which has taken place in the initiatory fee of the pupil at the Veterinary College. His admission into that seminary used to cost him nearer forty than thirty guineas. Now, twenty guineas will free him for ever. *This is false economy, and will, sooner or later, bring to the College many a youth that will deeply disgrace it.* We want not the groom or the menial there. We want not those with whom we should be ashamed to associate out of the theatre. As an individual, I cannot but wonder how such an egregious error could have been committed. In education, more than in any thing else, that which is cheap is seldom or never good; and so convinced are the public of this, that the number of students is always greater where the fees are high than where they are disgracefully below the mark.

"From the alteration which has now taken place in the profession of the veterinary surgeon, a course of education will be required different, in various respects, from that hitherto adopted. The *Materia Medica*, enlarged by the addition of so many patients of various structure, will demand especial attention, while many of the divisions of general chemistry will also require a most careful investigation. Happy is it, Gentlemen, for you, that you will have so valuable a preceptor and guide as the present chemical lecturer, Mr. Morton; why should I not be able to say, the PROFESSOR of Chemistry in the Veterinary College? I speak the feelings of all my brethren, when I express my regret and my shame, that a teacher so valuable, and so perfectly master of his subject, and whose place could not be readily supplied—could not, in the present state of things, be supplied at all—should be so inadequately remunerated. This is another of the consequences of the diminution of the admission-fee—another of the consequences of the false economy of the age.

"A general knowledge of chemistry, and particularly of agricultural chemistry, is necessary to the student; and few things would render him more useful to, and valued by, the farmer. These should be prominent objects of attention while he remains at the College; and here, again, he will feel his deep obligation to the Secretary of our Association. Botany would be a pleasing and a most useful relaxation. To the attendant on the diseases of cattle it is, in a manner, indispensable; for the student would be

preparing himself for much pleasing and useful communication with his future employer. This was required in the original programme of the employment of the pupil; and the Veterinary College at St. Pancras is the only one in Europe in which it is neglected.

“ If my time, from circumstances which should never have occurred, were not too painfully and too fully occupied, how eagerly should I, occasionally at least, attend the dissection-table of my valued friend—if he will permit me to call him so—the Professor of Anatomy and Physiology! Some of you will recollect during how many years I was the ardent advocate of comparative anatomy, as leading to the most—to the only—comprehensive knowledge of physiology. I congratulate you upon this change, and on the high character of the gentleman who has been selected to superintend this beautiful and useful portion of your studies. How delightful is it to contemplate in our different patients the exquisite adaptation of their variously-constructed organs to the services required of them! A passage in the eloquent lectures of Mr. Lawrence always presents itself to my recollection, when my thoughts are directed to this subject,—‘ The cultivation of comparative anatomy and physiology is particularly binding on those who are devoting themselves to the study and improvement of medicine. The basis of our physiological principles is rendered broader and deeper, in proportion as our survey of living beings is extensive. The varieties of organisation supply, in the investigation of each function, the most important aids of analogy, comparison, contrast, and various combination; and the nature of the process receives, at each step, fresh elucidation. These enlarged views of the natural play of the animal mechanism are our surest guide in the study of its deranged motions—a criterion for estimating the nature and degree of the deviation, and an important indication of the means by which it may be corrected. Thus, anatomy and physiology furnish us with the principles by which we should be guided in our attempts to preserve health and to cure disease. On researches and studies like these the science of medicine must be established.’ Happy, Gentlemen, should you consider yourselves, that in Assistant-Professor Spooner you have one whose pride and whose pleasure it will be to work this out to the very letter.

“ Another course of lectures remains to be noticed, and to which all the others are but comparatively feeble auxiliaries—those on the pathology and surgical treatment of the horse, and domesticated animals of every description—cattle, sheep, swine, deer, dogs, and the feathered bipeds. These lectures, according to the present arrangement, will fall to the lot of the principal professor, Mr. Sewell,

and the labour which they include is indeed fearful. Who is equal to it? No single individual! There is not, however, an individual of his class, or of the profession, who does not wish to the gentleman who has undertaken it full and complete success.

“There is one more officer always hard at work—always at the call of the student, and, although occupying a somewhat subordinate situation, yet having much to do with the onward progress of the class,—I mean the demonstrator, Mr. Barth. His assistance will be required whenever it seems to be necessary: it will be received with a kind and grateful feeling, and he will be supported in his arduous duties by the assurance, that he has the confidence and esteem of the pupils.

“And now, last, but not least, ‘The periodical return of the meetings of the Veterinary Medical Association.’ I had the honour to belong to this, or, more correctly, to a similar association, ere we were domiciled in the theatre of the College. I have the pleasure—and a great pleasure it is—to see those before me whose fathers and I used to contend, with all the eagerness and all the good feeling towards each other, which constituted the value and the charm of these meetings. There was no record of our proceedings then; and perhaps it was the freedom from all apprehension that our follies might meet other eyes, that made us identify ourselves with the subject under discussion, and gave to our meetings a charm, the remembrance of which has not yet passed away.

“Our proceedings are now published, and we must be a little more on our guard. We were then students, and students only; for a practitioner rarely or never made his appearance among us; but now we are occasionally honoured by the presence of those who are ornaments to our profession, and to whom we listen with advantage and delight. The character of our meetings is, therefore, in some measure, changed. You retain your ‘students’ nights,’ and I trust that you will ever do so. On these evenings you will freely test the accuracy and the extent of the knowledge of each other on the important subjects of respiration, circulation, digestion, and, in fact, all the fundamental principles of physiology—principles of which you must become perfect masters, ere you are qualified for the practice of your profession. But the practitioner, having become master of these subjects—having passed this ordeal—there is no novelty to induce him to listen to or to read many of the discussions, and he occasionally complains that his time is uselessly occupied by the perusal in your journal of so much that concerns not him. Well! keep your ‘students’ nights.’ They are invaluable to you. They give to you a habit of thinking and expressing yourselves on scientific subjects that will be most advantageous in after-life, and especially when you fall more into

contact, as you will do, with medical and scientific men. But leave it to the discretion of your committee what portion of the debate shall appear before the public. Your journal has attained a degree of reputation which, in your most sanguine moments, you did not dare to anticipate. A friendly connection with you is sought by literary men abroad—by foreign societies and foreign schools. Let this work be regarded as a sacred property. Let your journal be more and more worthy of the high estimation in which it is held; and do not be offended if we exclude from it that which you would be somewhat ashamed of in after years. Let its plain and manifest object be, the increase of veterinary science,—the examination of new principles and facts, and new or improved modes of treatment of rare or dangerous diseases. The scope and value of these inquiries and records will be materially increased by the return of the instruction of the pupil to that most important object, from which it had been purposely and too successfully diverted—*the pathology of other animals beside the horse*. The majority of the meetings of the Association having this character, we shall stand the best chance of oftener alluring to them the practical veterinarian, and we shall more effectually secure the respect of our friends at home and our continental brethren.

“But I have delayed you too long, and will conclude by informing you that Mr. Mayer, of Newcastle-under-Lyne, has kindly consented to deliver the oration at the commencement of the next session.”

At the conclusion of the oration, the gentlemen present, more than fifty in number, sat down to the anniversary dinner, and pleasantly did the evening pass away.

NOVEMBER 10, 1840.

The Members of the Association held their first business meeting for the session, in the Theatre of the College, this evening.

Mr. YOUATT in the Chair.

The Rules and Regulations having been read, the members proceeded to the election of officers for the session.

The President, Treasurer, Secretary, and Librarian, were severally and unanimously re-elected.

The following were chosen as Vice-Presidents.

Practitioners.

Mr. J. Turner
— T. Turner
— J. B. Simonds
— W. Mavor
— W. Field
— H. Daws.

Students.

Mr. W. Litt
— J. Fryer
— C. Morgan
— T. Greaves
— G. Norman
— E. Sansom.

The Treasurer, Librarian, and Secretary, acknowledged the honour conferred upon them.

The following Students were elected Members.

Mr. Petley	Mr. Delany	Mr. Pilcher
— Hutton	— Lawrence	— Jeffery
— Webb	— Mayer	— Mavor
— Bland	— Brown	— Stevenson
— Philips	— Walker	— Spicer
— Shorten	— Holmans	— Williamson
— Alloway	— Broad	— Sharland.
— Donaldson		

The meeting then adjourned.

NOVEMBER 17, 1840.

Assistant Professor SPOONER in the Chair.

The minutes of the last meeting were read and confirmed.

The Chairman, in acknowledging his re-election, said, he had to return his sincere thanks to the members for the honour they had conferred upon him in again appointing him their President. He could assure them that he at all times looked forward to the period of their meetings with much pleasure, and he never left them without having his mind refreshed on many interesting and important subjects. Those meetings were held for the purpose of free and unrestricted discussion ; and he invited every one present to offer his opinions freely on any and every subject that might come before them. He had no wish that a single pupil should be biassed by any particular views of his ; on the contrary, he was anxious that they should be discussed in the fullest manner possible.

Congratulations were offered to the President on his recent marriage.

The Secretary read letters from those who had been elected Vice-Presidents ; and one from Mr. Daws, who had declined to act.

The following communications from Veterinary Societies in France were next read.

FROM THE VETERINARY SOCIETY OF THE DEPARTMENTS
OF CALVADOS AND LA MANCHE.

*To Mr. MORTON, Secretary of the Veterinary Medical
Association of London.*

Bayeux, July 18th, 1840.

Sir,—We learned with great satisfaction, through the veterinary journals of France, that a certain number of our most distinguished colleagues in England had united themselves and formed a Medical Veterinary Association, the object of which was the advancement and propagation of medical veterinary science.

In the hope of establishing a correspondence, with an exchange of the labours of the two societies, I had the honour in 1839 to address your honourable President with the four first volumes of the Transactions of our society, under the cover of the Minister of Public Instruction of France. Not having received any answer, I accepted the obliging offer of a Mr. Smith, Professor of the English language at the College of Bayeux, who was about to visit London, and who said that he was personally acquainted with your worthy President. I committed a letter to his care, containing the same proposition, and the five first volumes of the records of the society. This last presentation had the same effect as the first, and I thought with reason that you had received neither. I then determined to write to our colleague, M. Delafond, professor at the veterinary school at Alfort, that he might inform me how a communication might be established between the two societies.

I have this moment received his answer, in which he informs me that he has communicated with you, and that you have informed him that your Association would be flattered in promoting and establishing a scientific correspondence with the Société Veterinaire of Calvados and La Manche. He advises me again to correspond with you; I therefore lose not a moment in so doing. I shall now give you a copy of what I had formerly written to your President.

“The necessity of such an association had long been felt in a country where the education of the domesticated animals had so large a share in that which concerned the agricultural interest. We had remarked, that a vast number of the diseases by which they are affected had not been described, and that others were only imperfectly noticed. With the intention of filling up this hiatus, we established in 1825 some reunions (periodical meetings), in which every veterinary surgeon that attended gave a verbal account of the most interesting facts that had occurred in his

practice. It was not difficult after a certain time to perceive the immense advantages resulting from these reunions and mutual communication. Encouraged by my colleagues, I framed and projected statutes of the society, which were approved and accepted; and in 1829 the society of Calvados and La Manche was formed. It was legally constituted, and approved of by Government in 1839, and is the first society of the kind which has existed in France.

The veterinary surgeons of the different parts of France have profitted by our example. The departments of Herault, of Lot and Garonne, and of Finistère, have formed similar societies; and others have applied for a copy of the statutes to institute the same associations in their respective departments. It is to be hoped that many others will yet appear, who will all rival us in zeal, and by a mutual communication of their transactions will in this manner contribute to the most rapid progress of veterinary science.

Our efforts tend all to the same end; we are solicitous of being leagued with you in the accomplishment of that which concerns us both so vitally; and by way of commencement, we venture to present for your acceptance the six publications which the society has already published.

We hope that, in return, you will favour us with a copy of the Transactions of your Association, to which we attach the highest value.

On our side, Sir, permit me to assure you that we shall be solicitous to furnish you with an exact account of all our labours. There is no doubt that these mutual exchanges between our distant societies will be attended by the best result. We all have the same object in view, and must, by assisting each other, throw great light on our respective divisions of science.

On my own account, I have the honour to present to your Association three small opuscles, one on Secretion; another on the Diseases of the Lactiferous Glands, and the third on a peculiar Affection of Foals. As to the last, I should be flattered if you would inform me whether this affection is known in England, if it has been described by any author, and what is its treatment. I should be so much more flattered to have these informations, because I have received a letter from my colleague and friend, M. Hamont, Director of the Veterinary School of Choubra, Egypt, who informs me that it is very common on the banks of the Nile, and that he has adopted the treatment I recommended with the best results.

Accept, Sir, the assurance of the highest consideration with which I have the honour to be, your most devoted,

LECOQ, *Sécrétaire perpétuel.*

FROM THE VETERINARY SOCIETY OF FINISTERRE.

To Mr. MORTON, *Secretary of the Veterinary Association of London.*

Morlaix, Sept. 19, 1840.

Sir, and most honoured Colleague,—I have the honour to inform you that we have formed a veterinary society in the department of Finistère. This society is composed of an unlimited number of members; viz. foundatory, honorary, titular, and corresponding, &c. Amongst its number are Messrs. the Director and Professors of the Royal Veterinary School of Alfort; and many others who have rendered eminent services to veterinary medicine, as well as other natural sciences.

The society does not exact any contribution from its honorary and corresponding members; it only solicits their assistance and co-operation in the difficult task it has undertaken, in exchange for which the diplomas and copies of the annual transactions of the society are delivered to the members.

The society would feel highly flattered to enter into friendly and scientific correspondence with your Association, and exchange the records of their mutual transactions.

The society would also feel highly honoured in having you and your worthy President as honorary members. If this meets with your approbation, I should feel highly honoured in having the pleasure of proposing you at our next meeting as candidates; and I feel confident that your election will be unanimous, as well as that of your honourable President.

I have forwarded to you the following works:—

1. On Typhus in our Domestic Animals.
2. Observations on the Horses and Cattle in the Department of Finistère.
3. Considerations on the Establishment and Haras at Morlaix to improve the general Breed of Horses.
4. Memoir on the Advantage of the Cultivation of the Merino sheep.
5. On the making of Butter in the Arrondissement of Morlaix.
6. The Transactions of the Society for 1839.
7. The Statutes and Rules of the Society.

PS.—It is requisite for me to have your names and titles when you honour me in proposing you and your worthy President as candidates.

I am,

Sir, and most honoured Colleague,

Your most humble and obedient servant,

J. H. ELÉOUET.

To Mr. Morton, *Secretary, &c.*

In addition to the works as above, presented to the Library, were the following :—

By the Author, Professor Rainard, “*Traite de Pathologie et de Therapeutique Generales Veterinaires*,” 2 volumes.

By the Author, Professor Magne, “*Rapport sur l’Epizootic Aptheuse*.”

By the Author, W. C. Spooner, Esq., “*On the Structure, Functions, and Diseases of the Foot and Leg of the Horse*.”

The history of some morbid specimens, sent by practitioners in the country, was now taken into consideration.

A CASE OF PHTHISIS SCROPHULOSA.

By Mr. LEPPER, of Aylesbury.

My dear Sir,—I herewith send you, what I conceive to be rather a rare specimen of disease, *phthisis scrophulosa* in the lungs of a cow. This animal was a heifer three years and a half old, of the Yorkshire and Durham breed. She was purchased by her late proprietor at a country fair, in December last, with a calf at her side, giving at that time a good quantity of milk, and was not then suspected to have any disease about her. Her milk was yielded plentifully throughout the remaining part of the winter, but she was thin of flesh.

On the 1st day of July I was requested to see her, as her appetite was impaired, and her milk nearly all gone. The following were her symptoms, as noted at the time: a slight cough; pulse 80; respiration quickened; bowels slightly constipated; neck straightened, and muzzle protruded; listless gait, accompanied by a grunt as from pain in her side, and on examining which there a protuberance was found on the rib at the point of the right elbow, and a disinclination to lie down.

She was bled to ℥viiij; had an aperient, and an extensive blister on the apparently affected side. The treatment afforded but temporary relief for a few days, and she again fell off. Other treatment was tried, such as repeated bleeding, blisters, rowels in the breast, febrifuge and pectoral medicine, all of which proved ineffectual, and I pointed out to the owner the propriety of having her destroyed, which he consented to on Monday last, and the following are the morbid appearances, independent of the lungs, kidney and ribs, which I send you for your inspection, but not to give you any trouble, or to take up your very valuable time in communicating with me on the subject.

There were many quarts of serous fluid, of a straw colour, in the abdomen, and in the cells of the cellular membrane throughout the

whole frame, between the layers of muscles, also in the mesentery, the omentum, and the whole of the adipose matter. The liver was scirrhus throughout; the gall-bladder quite empty, thickened very considerably, and perfectly white. There were four ribs affected like the sections I send you, containing pus in their centres. By a superficial view, they put on the appearance of having been fractured; but a closer inspection proved the disease to have commenced in the cancelli of the bone, and I think arising from the scrofulous disposition of the animal. The whole of the mesenteric glands were greatly enlarged, and pus was present in many of the superficial absorbent glands.

I find the peculiar gait, straightening of the neck, and protrusion of the nose, were noticed in December last, the time of purchase.

Accept my best wishes, &c.

The President said he had very little to add to the description of the case as given in the letter by which the specimen was accompanied.

On examination of the lungs it was found that there was matter within them, which on being given exit to, resembled very closely that found in many scrofulous tumours. Mr. Lepper had called the disease *phthisis scrofulosa*. Scrofula, however, was not confined to any particular organ or tissue of the body. Its seat was sometimes found in the liver, the spleen, or lungs; in fact, there was scarcely any part of the frame that was not occasionally affected with disease of a similar type; and in this instance the spongy portion of the ribs was implicated. This change in the ossific structure arising from scrofulous idiosyncrasy was not uncommon in dogs. He had found it existing in several hounds which he recently had an opportunity of examining, from the kennels of Lord Middleton.

A CASE OF TUMOUR ON THE HEART.

By Mr. STEVENS, of Newmarket.

My dear Sir,—I could not withstand the temptation of forwarding the accompanying specimen of extensive organic disease of the heart of a sheep, which I will thank you to present to the Association in my name. The history of the case is short enough. The sheep was perceived to be taken suddenly ill yesterday morning, and soon afterwards it died. I was sent for to examine it, as the owner could not account for its death; but you can if you look at the heart, &c. A very intelligent friend of mine (a surgeon) has examined it with me; but, being desirous that it should be sent

to you nearly in the state removed, we could not decide whether it was an aneurismal or a sarcomatous tumour. The diseased structure appears to have some bone in its composition. On examining the body of the sheep, I found the lungs covered with patches of inflammation, and in the centre of each there was a cavity or cyst, the wall of which felt like the larger bronchi, and which, apparently, had contained hydatids. I also found several similar appearances in the liver, and the duodenum was also much inflamed. In other respects the viscera were in a healthy state.

I am your's, &c.

The President said that the morbid specimen now before them was a most interesting one, and worthy of a place in any museum. The transmission of these and other morbid productions to the College shewed the kindly feeling entertained towards the Association by practitioners in the country, and gave proof that they are anxious to extend the veterinary art to its legitimate object,—the alleviation of disease in other animals beside the horse. A tumour of considerable magnitude will be seen is attached to the ventricle of the heart, and which is even much larger than that organ itself. It was not aneurismal, but might be described as sarcomatous, having coagulated blood in its centre, and surrounded with a hard substance analogous to bone. It had evidently been a long time in forming.

From its size, the pressure induced by it must have materially interfered with the action of the heart and lungs; still, however, the efforts of nature enabled the animal to carry on the functions of life without any indications of an organic change having taken place, until at length the tumour arrived at such a magnitude as completely to stop the circulation of the blood, and then death ensued instantaneously. The case was a remarkable one, as it shewed the extent to which chronic disease might proceed without the appearance of any symptoms denoting a disarrangement of the functions of organs so affected, although they might be intimately connected with life itself. He had examined the brains of horses that had not, for any length of time prior to death, exhibited signs of lesion having taken place, although it evidently must have been going on for a very considerable period, from the abnormal state in which he had found those organs on post-mortem examination.

As to the primary cause of the tumour in the present instance, it perhaps might have been produced by an external injury to the wall of the chest, occasioning inflammatory action in the pericardial sac, and, by extension, the heart itself becoming involved. This however is merely conjectural; for the cause of the formation of tumours is often very difficult to assign.

A CASE OF FILARIA IN THE BRONCHI.

By Mr. DARBY, of Louth.

Dear Sir,—Will you be kind enough to present to the Medical Association, for their inspection, a portion of the trachea and bronchial tubes of a three months old calf? The history of the case is this. Philip Skipworth, Esq., of Aylesby, a very eminent agriculturist, occupying four or five farms, came to my place on Monday night last to request that I would go to Aylesby, a distance of twenty miles, to examine a run of calves that were very bad, and some dying. He was afraid they had the epidemic.

I had previously attended several of his beasts with the disease, which had all done well. When I got there yesterday morning another had died, which the shepherd had skinned. I immediately examined the lot, which was housed just by. They had all been bled.

I found very great disturbance of the lungs and air-passages, with a considerable and peculiar rattle of the windpipe, and I gave it as my opinion that nine more would die. They are a very superior breed, some of them being valued at fifty guineas each.

When I was asked the cause of the peculiar symptoms, I gave it as my opinion that they were produced from worms in the trachea. We then went and examined the one that the shepherd had just opened. He had taken out the lungs, and slit open the windpipe, which presented a strange sight. It was literally filled with them. There were myriads rolled up like cotton balls, that were destroyed by the shepherd's dog, which provoked me very much; and the lungs were covered with them all over, and very much engorged with blood.

The abdominal viscera were quite healthy.

There were several hoosed. I inserted setons in their necks, and gave sedative medicine, &c.

I have had, this last week, a calf in precisely the same state. I took a piece out of the windpipe, but without any ultimate good.

I remain, &c.

Louth, Sept. 30th, 1840.

A CASE OF FILARIA IN THE BRONCHI.

By Mr. LEPPER, of Aylesbury.

Sir,—I herewith send you a diseased pharynx and a portion of the trachea of a calf which was the subject of bronchial inflammation in July last, commonly called husk. This disease

has been rather prevalent in the vale of Aylesbury from about the time spoken of to the present.

I believe that the attack commenced about July, and its effects continue to the present time; and, in consequence, many of those poor animals are greatly emaciated, and some few have been lost.

You have frequently heard of large quantities of worms being found in the air-passages of these beasts; and my principal object in sending this specimen is to give you an opportunity of seeing them. I suppose a wineglass-full could have been collected in the ramifications of the bronchi. Should you have had opportunities of seeing them before, probably some of your class may not. Various speculative opinions exist relative to the origin of these parasites. Are they not the product of some morbid secretion?—the result of disease, and not a cause of it? This is the light in which I am disposed to see it. If time would permit, I would say something more in the way of substantiating my opinion on this subject; but I am wanted twenty ways among cattle having the epizootic,—am I to say, aphtha? It is now spreading rapidly in the dairies, &c.; I think more than in the spring, but not so severe in its attack. I hear of some beasts being a second time affected, but I have not as yet witnessed a case of it.

The President.—Simple inspection of these preparations affords proof that a great number of these parasites had existed, and which at one time might have nearly filled up the lower part of the trachea and the bronchial tube. The presence of these filariæ was very common among calves; the diseased action induced by them deserves the particular attention of the student. It was to be regretted that no effectual means of eradication has as yet been discovered. There were various parts of animals which were liable to have parasites formed within them; in fact, he had found them in almost every tissue of the body. He agreed with the writer of the letter, that, until the cause could be ascertained that led to the production of the worms, the application of any medical agent for the destruction of them would be of very little use. He thought they were the effect of a diseased action of the mucous lining of the air-passages. Sometimes they prevailed in such numbers as to give rise to an epizootic form of disease in various parts of the country at particular periods of the year. When many of these parasites were lodged on the membranes, the passage of air through the lungs was impeded, and they kept up a high degree of irritation, which eventually caused death. It was, however, difficult to ascertain their origin, and, unfortunately, practitioners were seldom called in until it was too late to be of any

service. The only thing he could recommend in such cases was to endeavour to give tone and vigour to the system generally, rather than to attempt by local applications, such as fumigations, &c. to destroy them in their places of abode; being of opinion that, although those existing might be destroyed by such means, yet, from the peculiar state of the membrane where they were nidulating, others would be generated.

A CASE OF INTROSUSCEPTION OF THE CÆCUM OF A MARE.

By Mr. KENT, of Bristol.

Dear Sir,—On Friday last I sent you two portions of intestine from a mare that died on Thursday, the 12th instant, thinking they might be of some little benefit to the pupils now at College. I had not then time to write; but I now send you some history of the case, so far as I could obtain information.

The proprietors of the mare state that she was first taken ill in June, and was placed under the treatment of a farrier who said it was *a chill*, and for which he bled, inserted a rowel, and gave some medicine. She at that time shewed pain in the bowels, at intervals, by lying down and rolling; and not recovering sufficiently to go to work, she was sent to grass, and remained out until about the 18th of October, when she was taken up, and a dose of purging medicine given to her. On the 24th I was sent for, and found her with a pulse of 70, the breathing disturbed, bowels constipated, the fæces being very much coated with mucus; and the animal groaning on being moved round in the stable. She staggered very much in walking; evinced neither appetite for food nor desire for water; was almost constantly lying down, and would sometimes roll on her back. I bled her to the amount of ℥vi , which I did not repeat, and gave aloes ʒii ; carbonate of ammonia ʒii ; ext. belladonnæ ʒi ; in ball, twice a-day, until the bowels were moderately open; during which time the appetite improved, and the pulse became natural. On the 30th I ceased attending her, as she appeared to be doing well; but on the 4th of this month I was again sent for, and found that her appetite was moderately good, but she had been lying down and rolling; and I was told that she would at times lie on her back. I gave her a ball as above, with spirit. nit. æth. ʒi , in gruel, and she appeared better in the course of one hour. This was in the evening. The next morning I found that she had, in the night, become much

worse; the appetite was gone, the pulse was now become very frequent, and not easily to be distinguished at the jaw; and at times she would roll on her back, but she did not shew any violent pain. I gave aloes and belladonna and spirit. nit. æth. in gruel, as before, and thus got her fæces soft. I also blistered the abdomen, but without any benefit. The pulse now disappeared at the jaw, and rose as high as 100 at the heart. I told the proprietors, on the 5th, that there was something very singular in the case, and that I felt satisfied the animal would die. They could scarcely believe me. I however continued my attendance until a doubt no longer existed on my mind, when I told them I was quite certain she must die, but that I would still attend for my own satisfaction, without any charge, which I did until the 12th instant, when she died. On examination, the large portion of intestine which I have sent was intromsusceted, appearing like a stocking with the foot drawn up into the leg. Inflammation of the mucus lining had run very high. Some other portions of the smaller intestines were very much thickened, and the whole of the omentum inflamed. There was also congestion of the lungs, but the rest of the viscera were free from disease. Should the specimen I have sent not be of any use, I know your kindness will excuse the trouble I have given you.

I am, dear Sir, &c.

Bristol, Nov. 16th, 1840.

The President said that the specimen before them, sent by Mr. Kent, was a part of the cæcum. They would observe that the apex of it was inverted or intromsusceted; it was also in a high state of inflammation. The small intestines were likewise inflamed, particularly that portion of the ileum near its termination in the cæcum.

The case was interesting, from the fact that unfavourable symptoms were shewn so long prior to the death of the animal, and which it appeared, from Mr. Kent's letter, had for some time indicated a derangement in structure or otherwise of some part of the alimentary tube.

The horse is frequently the subject of intromsuscetion; but he had never seen a case like the present, where the apex of the cæcum was so involved. It was a difficult thing to ascertain the cause. It might have been from an attack of spasm or severe inflammation of the bowels. The disturbed action produced thereby was, in fact, the only way in which he could account for it. Intromsuscetion of the intestines is generally fatal, and frequently so at an early period of the attack; but, in the present instance, the apex of the cæcum being its seat,

a part which is seldom so affected, it occasioned only a partial stoppage of the ingesta. Had the smaller intestines been in like manner diseased, we should have had an entire stoppage of the aliment. Laxative medicines, in such a case, would have a beneficial effect, and afford the animal some relief; but it would be only temporary, as it was evident that that portion of the gut which had been pushed inwards was strangulated by a spasmodic action of the muscular coat of the tube, and which, consequently, went on to a state of gangrene. The present specimen of disease was highly interesting. They were often enabled to say that, from certain symptoms, the alimentary tube had been injured, but it was at all times impossible to ascertain exactly in what part. Comparing the symptoms with the morbid appearance before him, they would tend to lead to a more correct diagnosis in future cases.

A SCIRRHOUS TUMOUR ON THE SCROTUM OF A HORSE.

By Mr. MEGGINNIS, of Horsham.

I have seen, with pleasure, in the Proceedings of the Association, that you have had diseased viscera often under consideration; but such a case as the one I have sent I think perhaps you have never seen. I tried to put off the killing of the animal for a week, so as to be able to have had it fresh for next Tuesday night, but was not able to do so. The subject of the present case was a dark brown horse, fifteen hands high, and fourteen years old. I have known him ever since he was three off. He had the appearance, at that time, of being a rig; but there was always a discharge from the scrotum. For some time the enlargement was not greater than an egg; it then increased to the size of a cricket-ball, and continued about the same for four years, during which time he belonged to a farmer near here. He was then purchased by a gentleman in the neighbourhood, and, being better fed, and having more care taken of him, and not so much worked, the swelling began gradually to increase, but it did not seem to affect the horse's health, as he was in constant work, and during the season was regularly hunted: in fact, he was rather a superior horse, getting well through our heavy country. He continued to hunt up to the end of last season, carrying quite a light weight. The wound would, occasionally, during this time, cease discharging for a few days, and then break out in a fresh place; and so it continued up to the time at which the horse was killed.

Lately he began to lose his cheerful look and condition, and was rather tucked up, and also lost flesh. He was turned out into a paddock, to live as long as he seemed to enjoy himself; but, as he appeared to be in pain, his owner had him killed on Saturday morning.

I examined him, and found all the viscera perfectly healthy, except what I have sent you for inspection. This substance I conceive to be an enlargement of the spermatic cord, but you will see I have not cut into it. It was supplied with blood by the spermatic artery, that vessel being the only one I could find. It was supported by a thick, strong, ligamentous substance from the anterior edge of the os pubis, and when the animal walked it swung from side to side like a cow's udder; yet, although so large a substance, it did not much interfere with his making water.

The origin of it I cannot tell, but I should suppose it was from the external wound healing over before the end of the divided cord.

The President observed that the tumour, from its size, was calculated rather to excite surprise than to afford any material instruction. Scirrhus of the cord after castration was not at all uncommon; and tumours like the present were frequently found, but not often of such magnitude. This one weighed no less than twenty-nine pounds. He had met with nearly a similar case about four years ago in a horse belonging to a brewer. The tumour was excised, but the animal died from hemorrhage. In the present instance no attempt had been made to extirpate it. Although the case presented nothing remarkable beyond what he had stated, still the members must feel themselves obliged by their elder brethren in the profession sending these and similar morbid growths.

A CASE OF ENCYSTED TUMOURS IN THE LUNGS.

By Mr. TOMBS.

My dear Sir,—Being anxious for the progressive usefulness of the Veterinary Medical Association, I send you, per coach, a morbid collection of cysts and tumours, containing pus and particles of hard concrete matter, which I took out of the thorax of a bullock that was slaughtered yesterday. The history of the case is simply this. About three months ago I treated the beast for a chest affection. He was bled. His sides were blistered, and setons inserted in the dewlap. Febrifuges were

administered for a few days, and subsequently tonics, which apparently improved him. He was turned out after a month's treatment, and, on Sunday last, I was again called in to attend him. I found him dreadfully hooved; his rumen was inflated so much that it threatened suffocation; his pulse was 60; muzzle dry; countenance dejected. I immediately gave vent to the flatus, by plunging a trocar into his paunch. I then exhibited spirit. nit. æth. and gave an enema, his fæces being extremely hard. In the evening I removed the canula, and administered a dose of ol. ricini.

Monday.—Rumen distended—bowels constipated—a perfect loss of appetite. I introduced the trocar again, and gave a dose of socotrine aloes.

Tuesday.—Much the same. I administered another dose of purgative medicine.

Wednesday.—Worse—plaintive countenance—pulse 70, and weak—continually grinding his teeth together—his paunch greatly distended again. Although he purges freely, under all circumstances, I considered the case hopeless, and advised the owner to have him slaughtered, which he did.

This mass of disease which I forward you, was situated above the lungs, contiguous to the spine; occupying the space between the lungs and the place of the mediastinum. These lumps pressed so firmly against the œsophagus, that its caliber was considerably diminished, which utterly precluded the possibility of the rumen forcing the food again into the mouth to undergo a second mastication, and which accounts for the flatus of the rumen. The superior portions of the lungs were similarly affected. The physis had done its duty, as the rumen contained a pulpy mass of hay. The manyplus was diminished to half its natural size; the spleen was diseased; but all the other parts of the body were healthy.

I suppose the sessional course of the Association is over; therefore I shall feel obliged if Mr. Spooner will have the kindness to dissect this singular morbid specimen, and report thereon to the Association when an opportunity occurs.

I am, dear Sir,

Your's, &c.

Pershire, Sept. 10, 1840.

The President remarked that the tumours presented a granular surface externally; and, on laying them open, there was found a large quantity of viscid pus, mingled with earthy matter, which was not uncommon in ruminants affected with scrofula. He had both seen and heard of similar cases. This specimen afforded a convincing proof of the difficulty of determining the precise cause of death. In this instance the animal had an accumulation of

gas in the first division of its stomach ; now this was sometimes occasioned by a portion of turnip or other vegetable substance lodging in the œsophagus. So, when an animal retained a quantity of food in its stomach longer than it ought to do, much gas would be generated by the contents undergoing a fermentative process. In the present case, death was produced by the pressure imparted to the thoracic portion of the œsophagus. It was difficult specifically to account for the nature of this disease ; but such pressure as he had described had prevented the disengagement of gas, and led to the symptoms detailed in Mr. Tombs' letter, and from the effects of which it was impossible to relieve the animal. It was very clear the immediate cause of death was acute indigestion.

DECEMBER 1, 1840.

The PRESIDENT in the Chair.

There was a very full attendance of members.

Messrs. Godwin, Keyland, and Rowe were elected members.

Mr. Simonds, V.P. laid upon the table several interesting morbid parts, of which he offered the following description.

He said that he would endeavour to point out in as few observations as possible, the principal features of each ; for as he saw around him many of the leading practitioners of our art, who had assembled for the purpose of taking part in the debate which was about to follow on that insidious disease Influenza, he would not occupy too much of their time, however much he should delight to dwell upon the valuable facts which forced themselves upon the mind when contemplating such terminations of disease as these specimens presented, and belonging, as they did, to a class of animals whose diseases, up to the present time, might justly be said to have been greatly neglected. They might, perhaps, by some be thought to possess little interest : he, however, did not hold such an opinion. He was daily more and more convinced that correct data upon which to found successful practice were only to be supplied by an attentive study and comparison of diseases affecting the same organs in different animals.

The first specimen was from a valuable greyhound bitch. It was the result of an accident ; but one of rather an unusual character. She had been confined in a yard, and on making an effort to escape over an iron palisade, had fixed herself on one of the

spikes, which entered between the tibia and the tendons of the gastrocnemii muscles, usually termed the "tendo Achillis," just above their insertion into the os calcis of the tarsal joint. Shortly afterwards, being liberated, and the wound presenting a bad appearance, she was sent to his infirmary. On examination, he found an extensive laceration of the integument, laying bare these tendons, and which were likewise considerably injured in the poor animal's fruitless endeavours to extricate herself. He expressed his fears to the owner as to the result; for he well knew the difficulty of arresting inflammatory action, which must necessarily and shortly be set up, and which (from the injury done, as well as the constant stretch to which these tendons are put, even in a state of quietude, in this class of our patients) would, in all probability, speedily take on the sloughing process. In this opinion he was not mistaken.

The wound being stitched up, and the necessary treatment adopted, all appeared to do well for a few days, when came on this state of the parts of which he had spoken, and the patient was destroyed; the tendon itself having given way from the constant contractile agency of the muscles allowing the tarsus to rest fully upon the ground.

The next specimen likewise belonged to the dog. Of the history or symptoms of this case I can say little; but it was interesting, as shewing the extent to which disease, unchecked in its progress, might go; and the way in which death might take place, not being directly dependent upon the morbid condition of the original viscus affected. The organ which I now hold in my hand was the bladder; and it would on examination be found that a rupture of its coats had taken place, in one-third of its extent. The cause of this rupture was not one of original disease attacking the viscus; but was referrible to a mechanical obstruction, preventing the free emptying of its contents, and this produced by an enlargement of the prostate gland, which had gradually gone on increasing in size, pressing upon the neck of the bladder, and interfering with the functions of that important organ.

The patient was a very valuable spaniel, belonging to that breed known as the Duke of Norfolk's, and now possessed, in their full perfection, by the Earl of Albemarle. I was informed that, almost from a puppy up to the time when he was about two years old, the dog had always been delicate, and was observed to void his urine with difficulty: but there were not sufficient indications of disease for the owner to suppose that medical attendance was necessary until within a few days of its death; and then, he finding that the act of staling was effected with in-

creased difficulty, and accompanied by extreme pain—that the dog refused his food, was feverish, &c.—that at length frequent but ineffective efforts were made to expel his urine, he crying out from the extremity of his pain, and it was evident enough, that great mischief was going on ;—it was not until the poor animal was reduced to this state that he was placed under my care ; and even then was walked a mile and a half to my infirmary.

My attention was immediately directed to him, the man who brought him informing me that he seemed much easier since he left home. On examination, I at once pronounced that he could not recover ; in fact, that he was rapidly sinking : but from his then state, I could give no opinion with regard to the precise nature or extent of his disease. He was placed upon a bed in an appropriate apartment, with directions not to be disturbed, and in a few hours death closed the scene.

The post-mortem appearances were—the abdomen containing from four to five pints of fluid, having much the character of, but more bloody than, that found in cases of ascites. The peritoneum seemed to be dyed from its immersion in this fluid, as it shewed a general red hue, not apparently deeper in some parts than in others. There was an absence, to a great extent, of that beautiful appearance and well-marked course of the minute blood-vessels of this intestinal tunic which accompany cases of original peritonitis. Extending the examination, I found the bladder to be ruptured, and that the fluid of which I have spoken was, to a large extent, composed of urine, mingled with some other secretion from the peritoneal investiture of the abdomen and its viscera, probably produced from the presence of an irritant, the urine being brought into direct contact with the membrane. Farther research shewed this ruptured bladder to be caused, as I have explained ; and I here produce to you a chronic enlargement of a considerable size, of the prostate gland, causing by its pressure a mechanical obstruction to the passage of the urine. Death, then, in this instance, was not immediately brought about by the abnormal state of the original organ affected ; but the prostate gland having early in life become diseased, and being gradually increased in size, itself an effect, at length became a cause of still more serious disease, and attacking more important organs.

The last case, to which I beg your attention for a few minutes, is one still more rare, and, in my opinion, valuable, belonging, like the others, to a class of animals whose diseases I have said are much neglected and but little understood. These remarks, if true, will apply with ten times their force to that animal to which the morbid specimen now before us belongs, namely, *the pig*.

I am not aware that a case of this description is on record ; but,

even suppose such should be the fact, it does not make the present less worthy our notice.

I shall denominate it *hernia of the uterus*, and I use this term in contradistinction to that of inverted uterus; for although, in either instance, this organ is forced from out its natural cavity, and may strictly be said to constitute hernia of that viscus, still in the latter case we have the internal coat of the womb presented to our view, while here, as will be seen, we have the external or peritoneal covering.

The sow belonged to his Grace the Duke of Northumberland, was of the China breed, and considered a perfect and valuable specimen of her kind. She pigged in the evening, without any unusual difficulty, ten fine pigs, all of which were born alive, and nothing was observed in her to indicate either injury or disease.

On the following morning, the man under whose care she was placed found her lying at her length, and unwilling to move. She had during the night laid upon and destroyed three of her pigs. On looking still closer, he observed a considerable protrusion from the vagina, and my attendance to the case was immediately required. On examination, I found it would be impossible to reduce the hernia, and consequently the patient was immediately destroyed.

Having had the posterior portion of the body forwarded to my residence, I was enabled to make a more minute examination; and I found that the uterus had escaped from the pelvic cavity, in consequence of a rupture of the right sacro-sciatic ligament.

The cause of this accident is obscure, but evidently connected with the act of parturition. We might, perhaps, have more easily imagined such an effect, had any of the pigs been dead, or become impacted in the vaginal passage, or had the mother been what might be called a maiden sow: but here was an absence of all such causes. The only light which can be thrown upon the case would be to suppose that a laceration, probably from extreme tension, took place in this sacro-sciatic ligament during parturition, and the pain consequent upon such a lesion became a cause of the keeping up of the expulsive action of the abdominal muscles, for that it must be dependent upon their action, and not on any uterine effort, I think must be obvious. Had the latter state existed, I can see no cause to prevent the uterus becoming inverted, and not, as here, bodily forced from out its natural cavity.

Inverted uterus is not an unfrequent accompaniment upon parturition, and generally brought about by the contractile agency of the muscular tunic of that organ existing after the expulsion of the fœtus or fœtuses. This contraction, in order to assist ex-

pulsion, must take place first at the extreme ends of the cornua, and thence extend to the body of the organ. It is easy then to see that the part originally rendered smaller becomes forced into the still expanded portion; and, being unable again to resume its proper position, each effort drives the impacted part more and more onwards, until at length—inversion being complete—the abdominal muscles become spasmodically affected, and assist in expelling the uterus through the vaginal cavity.

As I have before stated, however, this case is not referrible to such morbid action, but to a lesion of the sacro-sciatic ligament. I must not sit down without apologizing for occupying so much of your valuable time.

The Secretary begged to express the thanks of the meeting to Mr. Simonds for his novel and interesting elucidation of some of the diseases of a class of our patients that had been too long neglected. He hoped that his example would be followed by others.

He had now, however, to direct the attention of the meeting to some important communications on the nature and source and treatment of the epidemic which was prevailing among horses. He had received a most able exposition of the disease from Mr. Spooner, of Southampton; and this had encouraged him to apply to other friends, who had kindly acceded to his wishes, and he had a noble packet to exhibit to-night. He was glad to see so many practical men assembled in the theatre, for it was a subject to which the attention of every member of the profession had been, and still was, most painfully directed, and he had no doubt that much useful information would be elicited.

ON THE PREVAILING INFLUENZA AMONG HORSES.

By Mr. W. C. SPOONER, V.S., Southampton.

Gentlemen,—Being impressed with the conviction that it is a duty incumbent on every member of the profession to endeavour, so far as his opportunities and capabilities will admit, to add something to the rich treasury of veterinary knowledge which it is the twofold object of your noble Association to collect and to disseminate, I cheerfully respond to the call of your invaluable Secretary, by throwing my humble mite into your treasury, not without the full expectation that it will afford me ample interest in return.

I present you with a paper on the disease designated "influenza," now prevailing among horses; conceiving that, as an impression on the extremities is conveyed to the sensorium quick as the lightning's flash through the medium of the nerves, so your Association, situated in the metropolis, ought to receive the best and earliest intelligence of any epizootic that may prevail in the provinces.

The influenza made its appearance in this locality during the month of September, and has continued up to the present time. My first cases were few and isolated, but they gradually became more numerous and more accumulative. The symptoms were very similar to those of the epizootic of 1836, at any rate sufficiently so to justify me in denominating it the same disease.

Symptoms.—The first symptom that awakened attention was the sudden failure of the appetite, which was either total or partial—the horse, perhaps, might have appeared perfectly well in the morning, and at noon he refused his feed. If I was called in at this stage, I usually found the mouth hot, and the pulse quickened, varying, however, from 42 to 80, being sometimes full and strong, but more frequently soft and weak. There was, generally, a somewhat dull appearance of the animal at first, although nothing to what afterwards supervened—the coat was often staring, and, when so, the attack usually became more severe. This symptom, however, was far from being universal. The extremities were rarely cold. In the course of six or twelve hours the symptoms became more aggravated—the pulse increased in frequency—the appetite became more diminished, and probably the legs and eyelids were considerably swollen. In some cases the respiration became quickened, and in others there was cough and sore throat; but in the majority of my patients there was no bronchial affection whatever.

In a few instances the disease quickly reached its acmé, but generally the symptoms increased in severity for two or three days, when, supposing judicious treatment had been employed, they gradually declined, and at length totally disappeared, the animal slowly regaining his former health and spirits.

The bowels, generally speaking, were not apparently much deranged; but their mucous coat was particularly susceptible to the action of aperient medicines, and the fæces were frequently enveloped in thin slimy mucus, and often softer than in a state of health.

In some cases the affection of the eyes was so violent, as to occasion temporary blindness; and in others pneumonia was present, but more frequently severe bronchitis. In many patients the œdematous swelling of the legs was enormous, and continued

obstinate when the other symptoms had abated. But, commonly, in proportion as the legs and eyes were much affected, the internal viscera were free from disease, and *vice versâ*. This rule, however, was by no means universal, for in several patients severe cephalic and thoracic symptoms were present in the same subject, and at the same time.

When an animal had been previously suffering from some chronic disease, such as broken-wind or hepatized lungs, the influenza was nearly sure to light up afresh the embers of the former fire, and this local disease generally proved troublesome and obstinate. So likewise, when, from the idiosyncrasy of the animal, an organ was in a weak and susceptible state, inflammation in that part was quickly excited by the general fever present in the system.

The only cases that I have lost were two, with previously diseased lungs. One was an extremely old broken-winded pony that sunk rapidly in the course of two or three days, apparently more from the weakness induced by old age and broken-wind than from the amount of new disease, which was by no means great. The other case exhibited during life very obscure symptoms, which were in some measure explained by the most complicated inflammatory appearances after death. The lungs, the windpipe, the pleura, the pericardium, and the heart itself, as well as the liver, exhibited the ravages of the most intense inflammation approaching to gangrene. The lungs, as far as could be judged, appeared to have been antecedently disorganized. This animal lived about fifteen days. In the earlier stage the pulse was strong and full, and he was bled largely, more so than any of my other patients.

Treatment.—Whenever the pulse was full and strong, I abstracted blood, and always, I imagine, with the best effect. In such instances I observed the blood slow in coagulating, and invariably presenting a buffy coat. I took great care, however, not to abstract too large a quantity; and I found I could produce the desired influence by half the quantity which, in ordinary inflammatory affections, it would be necessary to take away. The amount of blood withdrawn was always determined by its effect on the pulse, taking care, as soon as its character was materially altered, and becoming softer and less perceptible, to pin up the orifice. This alteration was sometimes produced by the loss of 4lbs of blood, oftener by 6lbs, occasionally by 8lbs, and in a few instances by 10lbs. In two or three cases, where there appeared to be severe internal inflammation, I repeated the blood-letting on the following day, and in one case in the same day; but, as a general rule, even in cases where the pulse had on the following day regained

its strength and fulness, I abstained from a second bleeding, trusting to medicine and the progress of the disease to soften the pulse, which I found to take place commonly on the second or third day.

I had recourse to local venesection still more frequently than to general bleeding; indeed, whenever the eyes were much inflamed, or the lids swollen, I scarified the latter with a lancet, and opened the angular veins; which course of procedure I found attended with the best results, for the local inflammation generally subsided in the course of twelve or twenty-four hours, whether I had bled generally before or not.

On referring to about fifty cases, I find that in twenty-three I employed general bleeding; in the remainder I did not: but in twenty-five cases I bled locally either from the eyelids and veins, or the bars of the mouth. The majority of these were cases in which I had not bled previously, and the minority belonged to those in which I had before employed venesection. More than one-half of the horses that were bled generally were from the same stable, principally young cart horses that had been recently purchased, and afterwards worked very hard. They had also been allowed a considerable quantity of beans, a diet to which they had not previously been accustomed.

Among these horses I found my severest cases, often complicated with pneumonia, bronchitis, and other visceral derangement. In them, too, the blood presented a thick buffy coat, and the pulse was strong and full.

My usual treatment in the way of medicines consisted in administering the following:—

R̄ Ol. crotoni gtt. v
Potass. nitratis ʒiv to vi
Antim. potassio-tartrat. ʒi
Spt. etheris nitrici ʒss to ʒi
Liq. ammon. acet. ʒij to iv
Aq. tepidæ q. ut. a ft. haustus.

Sometimes 4 drs. of potass. bi-tart. was added to the above, and, when the head appeared much affected, ʒi camphoræ. This draught was administered generally once but sometimes twice a day, the croton oil being omitted after the first dose. After the first day, in by far the greater number of cases, ʒij pulv. rad. gentianæ were added to the draught; and after the second or third day a ball was substituted for the draught, consisting of

R̄ Potassæ nitratis ʒij
Antim. potassio-tartrat. ʒi
Pulv. rad. gentianæ ʒij
Pulv. baccæ pimentæ ʒi.

M. fiat bolus.

In one case the above draught produced profuse perspiration immediately after, and each time, it was administered. Although this effect may be principally ascribed to the idiosyncrasy of the animal, yet it proves the diaphoretic properties of the medicine, although this may not generally be distinctly perceptible.

Counter-irritation.—In by far the greater number of cases there was no inflammation of the air-passages; but whenever it was denoted, I blistered the throat, the course of the windpipe, and the breast, or inserted setons or rowels as the particular case appeared to demand.

Such is a brief, but I trust a succinct, account of the treatment I have found successful, not only in conquering the disease, but in restoring the health and strength in a short space of time. Although the majority of cases were not dangerous, yet many of them were so; and it is notoriously the fact, that a great number of horses have died from the disease in various places. Indeed, in the establishment to which I have referred, three horses died from it under the care of another person not a member of the College; and in several instances where horses have been treated by the owners, although the case was not dangerous, they recovered, but slowly, and with great loss of condition.

GENERAL REMARKS.—I have found in the present epidemic a greater disposition to œdematous swelling of the extremities and sheath than in that of 1836; and so obstinate, occasionally, were these enlargements, that they were reduced with much difficulty, and only after the frequent and continued employment of diuretics, and the insertion of setons in the thighs. There likewise appeared to be throughout the attack a capability of taking large and repeated doses of diuretic agents without exciting the kidneys in any great degree. At least double the quantity could be given, and with no greater action than half the quantity in a state of health.

In one place where I attended, the prevailing epizootic was raging amongst sheep, and at another place amongst cattle; but the owners required no professional assistance, as they informed me they readily cured the affection, both of the feet and the mouth, by the application of salt and tar. Are these diseases to be attributed to the same cause as that producing influenza in horses? And is it probable that the influenza will appear amongst mankind during the approaching winter or spring, as it succeeded the disease amongst horses in the year 1836?

As I find at this, the eleventh hour, that it is impossible to be personally present when this paper is submitted to the

consideration of the members of the Association, I think that I cannot do better than atone for my absence by instituting a few questions naturally springing out of the foregoing account; not, however, with the expectation of being enabled satisfactorily to solve them, but in order to provoke profitable discussion, and afford, as it were, some useful pegs, which may serve the purpose of suspending many valuable facts and observations on. For my part, I shall be contented to act as the humble pioneer, leaving to you the mightier task of clearing away all impeding doubts and difficulties.

1st, *To what cause must we attribute the influenza?*

On this point I must refer to the theory of your esteemed patron. I can go so far with him as to believe that, in common with the epizootic amongst cattle, it is derived from some peculiar atmospheric poison, the nature and the source of which I do not profess to know. I am not inclined to consider that it can be assigned to the influence or fluctuation of the weather, although I believe that these changes will considerably modify the symptoms; for it is a fact worthy of especial attention, that the disease made its appearance, and continued to prevail, in this neighbourhood during the prevalence of remarkably fine and genial weather.

2dly, *Is the blood the seat of the disease?*

In my opinion, certainly not, for I have found it in two very opposite conditions—one slow in coagulating, and presenting a thick and firm buffy coat; the other dark coloured, quick in coagulating, and with no buffy surface. The former appearance I have invariably found connected with a strong and full pulse; the latter attended by a weak soft pulse: but quick in both instances. Under the last-mentioned circumstances I bled in very few instances, and then only in small quantities; but, I have no doubt the appearance of the blood would have been the same in every case in which I abstained from general bleeding. The appearance of the blood, and the state of the pulse, are, probably, rather to be attributed to the idiosyncrasy of the patient and the diet to which he had been accustomed, than to the effect of the disease. I coincide with your President's opinion, that the state of the blood ought to have little or no influence over our treatment of disease; but I cannot go so far as to discard it altogether from consideration. I must confess, that I almost always examine its appearance after venesection, which, however, can be ascertained as well in a few minutes as in as many hours; and in an inflammatory disease I am always pleased to find a buffy coat, for it assures me that, at any rate, my patient can endure blood-letting. In a case in which I may be in

doubt as to the propriety of repeating the withdrawal of blood—being, perhaps, influenced, *pro* and *con*, by equally weighty reasons—I should incline to the performance of the act if the blood, at the previous abstraction, had presented a fibrous coat. This, however, is a digression for which I must apologize, and return to another query.

3dly, *Where then is the seat of the disease? or in what does it consist?*

Surely, not in the presence of any symptoms that, however frequent, are yet in some cases wanting. And it is a curious fact, respecting the quick pulse, the tumefaction of the extremities and the eyelids, the loss of appetite, the affection of the throat, or the lungs, that however frequent these appearances may be, yet there are some instances in which one or more of them are absent. The only symptoms universally present, are fever and prostration of strength. We must, therefore, regard it as a fever *sui generis*, in which the mucous membranes are considerably affected, and the nervous system greatly deranged. It will run its course. There is no knocking it down. All that we can do is to regulate its progress—to moderate its fury, and to assist Nature in her own operations. We may, indeed, conquer by a siege, but not by an assault.

4thly, *Is bleeding desirable in this complaint?*

On this question, I do not expect your members to fight over again the well-contested battles of 1836-7; but it will perhaps be interesting again to canvass the opinions of many of those who then fought in the foremost ranks, and to ascertain whether any, and, if any, what alteration has taken place in their opinions, from ruminating over the end of reflection during four years. My own opinion is shewn by my practice. I cannot say that it has undergone any change, or if there be any, it slightly leans towards the side (without, however, entering the ranks) of the opponents of venesection. I take it for granted, that the chief art in treating the disease is, to know when to bleed and when to abstain; being guided in this matter chiefly by the state of the pulse. Where, however, I have not bled generally, I have witnessed the very best effects from local bleeding. It has in a few hours relieved the tumefaction of the eyelids, and the heaviness of the head, to a great extent. One thing is most clear—we can produce a very great effect on the system by moderate bleeding.

5thly, *Is aperient medicine judicious?*

This, too, is an old disputed point. I am myself in favour of a very moderate dose at the commencement, but against its repetition. I have most commonly administered five drops of

croton oil, which has generally produced a sufficiently laxative effect. The addition of a few drops more I have known produce purgation. I am inclined to believe that a very moderate action on the intestines will hasten recovery of the patient.

I have been required to attend several cases of superpurgation from the administration of full doses of physic in this disease, given by empirical practitioners.

In one instance I was called to see an animal which one of these savans had previously visited, and for which he had immediately put in practice the whole list of his remedies—a mild dose of physic, a rowel in the brisket, a blister on the throat (there was no affection of the air passages), and he was just going to take away six quarts of blood; but this the employer would not permit until he had consulted me. I attended a few hours afterwards, and, from the pulse, I deemed it prudent to abstract about five or six pounds of blood, which proved buffy. The next morning I found the pulse much softer, and not increased in quickness; the fever less, and the general symptoms more favourable; but, notwithstanding this, the man had been there before me, and, finding the physic had not yet operated, he wished to give another dose, and to take away six quarts more of blood. The owner fortunately declined his farther assistance, or he would certainly have destroyed the horse; for, as it was, in the succeeding night severe purgation ensued, anticipating which I had left some medicine to counteract it. The appetite, which, a few hours previously, had been improved, was now totally gone, and the animal appeared in the greatest debility. His recovery was, in consequence, very much protracted

6thly, *Is the influenza infectious?*

This question will admit of no absolute demonstration. We must content ourselves with reasoning on the facts that may come before us, and be satisfied with approaching to the confines of probability. After a few scattered cases, I was called to attend a pony at some livery stables. A few days afterwards I had another, and, in all, nine cases in these mews. At this time there were no other cases in the neighbourhood of these stables; but, six weeks afterwards, I attended a case at another mews not more than 100 yards distant from the former, and here I had, one after another, five cases.

In the establishment where I had the greatest number of cases there was a young horse that indicated the approach of strangles. He was removed to the hospital stable, in which were several horses with influenza. He remained there eight or ten days, getting on pretty well, when he suddenly shewed the symptoms of influenza, in addition to those he had before, and

his pulse rapidly rose from 46 to 80. This certainly looks like infection. On the whole, I am disposed to regard the disease as infectious; believing, at the same time, that the greater number of cases are produced from the same unknown atmospheric cause.

And now, having finished my questions, allow me, in conclusion, to offer my best wishes for the continued prosperity of your valuable Association, whose discussions have hitherto so greatly tended towards the onward progress of veterinary science. I must confess myself one of those who, when first apprised of its formation—judging, perhaps, too hastily from previous events—was disposed to doubt very much the acquirement of that success which you have now happily attained. When your bark was first launched amidst the fury of opposing elements, I did not do justice to the able pilotage which soon succeeded in guiding her through the straits of danger and difficulty into the wide ocean of peace and prosperity. Your gallant vessel, however, so well manned and so ably officered, has already completed her fourth voyage, and is just commencing her fifth. In each of her past voyages she has succeeded in bringing home a rich cargo of veterinary knowledge, which, by aid of our Periodical, has been disseminated among us. May her future voyages be attended with like success! May she meet with no sudden squalls to upset her; no rocks nor quicksands to undermine her; but may the same steady winds which first propelled her on her course, ever continue to fill her sails! or—to drop all metaphor—may the same sound principles which have hitherto influenced your conduct, continue to regulate your actions. Then, gentlemen! then, be assured that neither yourselves, nor the profession, nor the public at large, will ever have cause to regret the establishment of your noble Association.

The Essay was received with much applause.

A letter on the same subject, addressed to the Secretary by Mr. SNEWING, of *Rugby*, was then read.

My dear Sir,—Your solicitation awakens my sluggish nature into activity, and apprises me of my duty, and the debt of obligation I owe to that distinguished body—the Veterinary Medical Association—which did me the honour of electing me one of its Corresponding Members; and were my powers equal to the ardency of my desires for the accomplishment of the task, much more satisfaction would attend its performance, and, perhaps,

some little benefit might be conferred on the cause to which, both by inclination and choice, I am united.

I accepted and I still retain the honourable office conferred upon me, not from any supposition that I possessed the means of contributing to the advancement of science, but from a knowledge that the mind is susceptible of improvement; and in the fervent hope that, placed as I am in the practical field of our common science, I should not altogether fail in deriving some useful information from the interesting scenes of morbid action and organic changes which are daily coming under my observation, and which it would be my pleasing duty, from time to time, to communicate to you.

I cannot say that the disease now under your consideration—influenza—has, in this locality, assumed an epizootic form since my sojourn here; but it has occasionally presented itself in forms as various as the grades of action in which it is manifested. In some cases we have predominant an affection of the respiratory-mucous surface, the general symptoms being those which have most correctly given rise to the appellation of "*febrile catarrh*," and which appears to be of an epidemic character. There are present, at the outset much injection of the mucous tissues; a copious muco-purulent defluxion from the nostrils; impaired appetite, lassitude, cough, dyspnoea, and a pulse ranging from 50 to 80. To combat this I have found no treatment so successful as the free withdrawal of blood at the beginning of the attack, and repeated, if necessary, so long as the force of the pulse and caliber of the artery remain undiminished. A horse suffering from a disease characterized by the above symptoms, but in an aggravated form, was lately placed under my care (and he is selected out of eight which had it at the same time and in the same place). I found in him a pulse full, and an artery distended, forcibly beating 72 per minute. I immediately withdrew blood, to the amount of six quarts, when the diminishing volume under my finger warned me of the approaching state of collapse. In twenty-four hours afterwards it had resumed its tone, and increased in number of beats to 84. I bled again, and by the loss of five quarts more the same impression was again made. In twenty-four hours after this, inflammatory action was found to be still raging, indicated by the intensely red and injected tissues, and undiminished vascular excitement.

Blood-letting was again and again repeated, after the lapse of twelve hours between each operation, and at the fifth time with the happiest result—the pulse sinking under it, the injection of the membranes disappearing, and permanent convalescence supervening. Throughout there was present the mucous *râle* in

the trachea, but on placing the ear at the side nothing was heard except the "all but undiscernible murmur of health."

As my laxative, I gave the Mocha aloes, an agent which you did me and my talented friend (particularly to be esteemed at this time) Mr. Mayer, jun., the favour of making known the worth of through the medium of *THE VETERINARIAN*. It is a drug which requires only an introduction into our pharmacy to merit one of the highest places in veterinary medicine; for there is no aloe (as it regards the horse) which can be brought into competition with it. It rarely or never causes gripes during its operation, while it is as safe or safer, and equally as powerful, and one-third the price of the finest Barbadoes. But here I digress:—I gave of it three drachms, pot. tart. ant. ʒi, nit. pot. ʒss, veratrum ʒss, made into a ball with soft soap; afterwards giving twice a-day, sulph. sub. ʒij, nit. pot. ʒij, pot. tart. ant. ʒi, veratrum ʒss, sapo. mollis q.s., ut fiat bolus. I also blistered the throat, inserted a seton in the breast, threw up enemas twice a-day, &c.

In another form of the disease we have the circulatory system more generally involved; the vascular, lymphatic, and absorbent systems being all deranged. There is oedema of the extremities, and that to a very great extent; the pulse is from 48 to 54 at the beginning of the attack—the breathing is embarrassed—a slight cough is present—the appetite is impaired—and the animal listless and unwilling to move.

Bleeding largely at the onset is here again my most useful remedial measure, followed by a laxative, and the exhibition of sedatives and diuretics. In a few cases in which I refrained from bleeding, the disease ran its course favourably, but was more protracted, and the breathing continued impaired for a longer time, with an occasional cough accompanying it.

In yet another form I have met with this disease. The animal is first observed "to go dull," as the owner says; on retiring home he "minces" over his food; coughs a little; the eyes look swollen; the breathing is considerably increased, with a pulse singular for its smallness and diminished volume of the artery, and so weak as to be scarcely discernible, but rarely increased beyond 40 or 44, and frequently not at all, and no injection of the mucous tissue. I have from these indications inferred that this is a case which would not require blood-letting, and acted accordingly; but in the sequel I have found that remaining which I have complained of above, in the preceding form; and I afterwards bled, when all these unfavourable symptoms disappeared.

I now come to the last and most fearful form; and, perhaps,

the experienced man will say, the only true and correct one to which the name of influenza is applicable. Here we have sudden loss of appetite—erection of the coat—extremities swollen—nostrils injected, though not so florid as in febrile catarrh, the redness being of a deeper and duller aspect, and there is only a watery distillation from the nasal chambers; the eyes are suffused with tears, the lids are swollen, and the head is drooping. The pulse is generally increased to 50 or 60 or more per minute, and the breathing is disturbed in correspondence with it, but a cough is not a constant attendant.

Here again I have recourse to blood-letting, with, I believe, the most beneficial effects, invariably carrying depletion at the first to the extent of producing that temporary increased excitation of the nervous and vascular systems which precedes the state of collapse or syncope that is consequent upon the withdrawal of blood, but which appears to have been little or not at all regarded by authors. It is a state of excitement which is quickly—nay, almost momentarily—followed by depression of the vital powers, the pulse becoming almost or quite imperceptible at the jaw, the animal sighing, &c. and for a time appearing uneasy and faint. This is succeeded by drowsiness, and the gradual return of the vascular action and re-establishment of the vital powers. I consider this to be not only referrible to the disease in question, but to be the case generally when blood is withdrawn to the extent bordering on syncope.

So universally have I observed it to be the case, that I have made it a rule, whenever I entertain any doubts of the propriety of bleeding, or when syncope is not desirable, to place my finger on the artery at the jaw, my eye on my watch, and to detract blood until I find a pulse which—say, for example, is beating 70 per minute—gradually creeping up to 80 or more, and then I close the orifice. I now wait a few minutes to watch the effect produced; I feel for the pulse, but gladly find that it is, generally speaking, lost; by which I know that the desired impression has been made upon the system. But, by and by, the pulse will re-establish its tone; and on the state of that, as indicative of vital power and vascular excitement, I decide upon the propriety of again resorting to the operation of blood-letting, bearing in mind, that there is in this, as in other epizootics, or diseases which occasionally assume that character, the immediate and undefinable cause still in operation, from which the animal cannot be removed—a cause, the influence of which gives rise to a morbid vascular excitement, and produces asthenic inflammation, and its too often fatal consequences.

After bleeding, I give an aloetic laxative, throw up enemas,

and exhibit the sedative before mentioned morning and night; and, as I am inclined to think that there is a morbid state of the circulatory fluid existing in epizootic and some other diseases, I attempt to correct it by giving, while the bowels are inactive, the bi-carbonate of potash in doses of $\mathfrak{zss}$ daily, and, when a relaxed state of the bowels is obtained, the carbonate of soda is substituted for it.

In the decline of the disease, when the vascular excitement still lingers out its existence, with much prostration of strength accompanying it, I rarely or never give the nitrous ether, from having more than once fancied that it brought back the dangerous febrile action that was subsiding. But, in looking without the privileged pale, I have found in the hydrochlorate of ammonia a therapeutic which, in such cases, is at once a sedative and a tonic—a combination of action in this stage most devoutly to be wished for, since in the epizootics and the latter stages of those diseases where there still remains a morbid vascular excitement coexistent with a depression of the vital powers, it is with me a very favourite remedy. When I need more—which is rarely the case—I find in the cinchona bark a safe and useful one; and these, conjoined with the occasional exhibition of diuretics, are all that I require.

Remarks.—I would that some able reviewer would take up his pen, and give us his opinion on the comparative value of digitalis and white hellebore root. They are both remedies that have found able supporters and zealous and talented patrons in the profession; but much benefit would be derived from collating the opinions that may be entertained respecting the real worth of these medicaments.

When I first entered into practice, digitalis was the agent I employed to controul inordinate action of the vascular system. I gave it alone and in combination, and in all proportions, from $\mathfrak{Oj}$ to $\mathfrak{zij}$, and at intervals of from four to twenty-four hours—and occasionally I produced an intermittency of the pulse. Still the medicine and the disease too frequently baffled me. I began at length to find that no reliance could be placed on its action, and that to do any good with it generally, it required greater tact and judgment in its employment than I possessed. I therefore abandoned it; and being left without a favourite, I sought for a new one, and for a time the somewhat misapplied term of “caution” in the use of hellebore kept me in fear, and from doing it justice: but with time I gained confidence, and now, with feelings of satisfaction, I can bear testimony to its value as a direct sedative; but as I hope some one—say yourself—will take up the subject I have named, I defer till then saying any thing more respecting it.

In conclusion I may state, that only two fatal cases of influenza have occurred in my practice; and in both there was effusion into the thoracic cavities, with the other lesions so frequently attendant upon it.

Here, then, finish my imperfect—it may be worthless—remarks; in penning which “I may”—using your own words—“have done wrong; but in not attempting the fulfilment of your request I should have done worse.” Accept my heartfelt wish for the prosperity of that Association to which so much of your time has been devoted, and believe me to remain, &c.

Foley, Staffordshire.

To this followed a letter from Mr. Hughes, on the same subject, likewise addressed to the Secretary.

There is an epidemic raging amongst the horses in this part of the country, which is similar in some points to the influenza of 1836.

The first cases I saw were in the infirmary of Mr. Mayer, of Newcastle, on the 24th of October. On the 26th I was requested to attend two omnibus horses, belonging to an innkeeper in Lane End. These were succeeded by many others.

The earliest symptom of the disease that I have seen is a great and sudden prostration of strength—so much so, that if the animal is forced on, he will frequently drop down. The horse then loses his appetite—his legs, sheath, and frequently the eyes and muzzle, become œdematous, so as to prevent the animal lying down or moving—there is a slight discharge from the eyes, and sometimes from the nostrils—great tenderness evinced when pressure is applied to the abdomen, and in the region of the flank—more or less constipation of the bowels; and the respiration is generally hurried.

I shall now introduce a case, to exemplify the mode of treatment I have hitherto found successful, not having lost a single patient.

October 27th, 11 A.M.—I was requested to attend a grey horse, belonging to a coal carrier in Longton. The owner told me he had “perceived him with his head between his fore legs early that morning, very dull, limbs stiff, and off his food.” The mucous membranes were slightly injected, the extremities cold, the flank very tender, his respiration hurried, dung hard and slimy; pulse 90, imperceptible at the jaw; and the legs stiff and much swelled. The owner wished me to bleed; but to this I objected. I ordered his legs to be bandaged, his abdomen to be fomented, and a frequent use of warm water enemata. I also gave him a ball, con-

sisting of antim. pot. tart. ʒj, pulv. digit. ʒss, camph. grs. x, pulv. potas. nit. ʒij, aloes ʒi. Diet, frequent mashcs.

28th, 8 A.M.—Pulse 92, a little stronger than yesterday—breathing still hurried—dung coated with mucus—legs much swollen, but warmer—abdomen tender. There was something about him that I liked, although his pulse was a little more frequent. Give a ball composed of antim. pot. tart. ʒi, pulv. digit. ʒss, camph. grs. xv, potas. nitrat. ʒij, terebinth. com. ʒij. Continue enemata and mashcs

6 P.M.—Pulse 90, stronger—respiration quieter—abdomen not so tender—legs warm—dung softer, and more healthy, and a little discharge from the eyes. He is more lively to-night; let him have a draught composed of sp. æther. nit. ʒi, potas. nit. ʒij, pulv. digit. ʒss, camph. grs. xv, aquæ Oj. Continue enemata and mashcs.

29th, 9 A.M.—Pulse 84—respiration quieter—sides not so tender—dung healthy—appetite returning. Give sp. æther. nit. ʒi, pulv. digit. ʒss, potas. nitrat. ʒij, camph. grs. xij, aquæ Oj. Diet as before.

30th, 9 A.M.—Pulse 70, weak—respiration quieter—abdomen better—evacuations better. Give in a ball, antim. tart. ʒiss, camph. grs. xv, potas. nit. ʒij, pulv. lini ʒij.

31st, 8 A.M.—Pulse 58, weak—respiration more tranquil—dung natural. Give pulv. gent. ʒiss, potas. nitrat. ʒij, pulv. digit. ʒss, pulv. zingib. grs. x, pulv. lini ʒij.

Give a few scalded oats with the mashcs.

Nov. 1st.—Pulse 50, weak—better in every other respect. Give gentian ʒij, camph grs. x, pulv. potas. nitrat. ʒij, antim. tart. ʒj, in ball.

2d.—Pulse 43, stronger: other symptoms improving. Repeat the ball, with the addition of another drachm of gentian.

3d.—Pulse 38: the patient convalescent. Diet, hay and malt mash.

I heard no more of this case until the 6th, when the owner called at my house, and said his horse was very bad again. On going to see him, I found that he had been a journey of twenty-two miles on the day previous, with a common cart and four men and women, and that when they reached their destination, the horse was allowed barley *ad libitum*. The consequence was that the horse had an attack of gastritis or gastro-enteritis, which yielded to venesection, assisted by medicine. There is an empiric here who is bleeding all before him, and the consequence is, his practice has terminated the existence of several animals. I have never found it necessary to bleed at present; and though I have had many cases, I have been fortunate with them all. I think the chief things to be administered are diffusive stimu-

lants, assisted by sedative, saline, and tonic medicines, varying with the symptoms. I have not had an opportunity of examining the terminations of the disease by a post-mortem dissection.

After this an extract from a letter communicated by Mr. LEPPER, on the same subject, was read :—

You mention in your letter, that on Tuesday next our zealous and talented friend, Mr. Spooner, of Southampton, is to bring before the members of the Association the subject of Influenza, which I am sure will produce much valuable discussion. Although the field has been gone carefully over by some of the leading stars of our profession, and some others who are equally anxious to promote progress in our art, it still contains hidden treasures that will amply reward future labourers.

I think it behoves me to be very brief on the subject; yet I am anxious to comply with your wishes; and, if I mistake not, you only require my ideas on the disease. I therefore will endeavour to give them in as few words as I can.

Were my cases in future to consist altogether of cases of influenza, my lancet would get rusty, and aloes, digitalis, veratrum, and antim. tart. would be erased from my druggist's order. I will, however, turn to my case-book, and give you an instance—perhaps the more recent the better—that will enable you to judge, in some degree, of my usual mode of treating influenza in its ordinary form.

Friday, 20th Nov.—Chestnut horse, six years old, the property of His Grace the Duke of Buckingham, at Wootton House.
Disease—Influenza.

Symptoms.—Dejected countenance—loss of appetite—faltering gait—pulse 80, and compressible—serous discharge from both nostrils—frequent rumbling in the bowels—legs alternately hot and cold—respiration accelerated to thirty-four in a minute—frequent shifting of the limbs.

Treatment.—Friction to and bandage of the legs; stimulate the throat and breast with the linimentum album—R Ol. oliv., sp. tereb., liq. ammon., of each equal parts, and give every twelve hours—Tr. opii 3vj, sp. æther. nit. 3vj, creasot. 3ss. Tempt him to feed, if possible, by occasionally offering a little hay wet with cold water; give turnips, carrots, &c., and seek for a few handfuls of grass with dry or wet bran, adding a handful of oats. I should have stated, when mentioning the symptoms, that the tongue was moist, and a little frothy; saliva was adhering to the margin of the lips, and the fæces were rather disposed to become soft.

22d inst.—Both eyes closed, and a watery discharge from them; legs warm; pulse 70; breathing rather more free, and twenty-

eight in a minute; feeds a little on hay: has taken some gruel two or three times since yesterday—stales too frequently. Continue the treatment as before.

23d.—Every symptom improved. Give the medicine once a day. It is mixed in a pint of thick gruel, and directed to be very carefully horned down.

24th.—Much improved. Appetite returning; eyes bright; the animal walks freely round his box. Give cordial mass $\mathfrak{z}\text{j}$ daily.

27th.—Appetite good; breathing and pulse regular, unless excited; general appearance satisfactory. Discontinue medicines.

You will not infer that I dispose of all my influenza patients with the same facility as in the case I have quoted; but this may be taken as illustrative of the treatment adopted by me; and the success that has hitherto attended it warrants my speaking of it in terms of commendation. Should other symptoms shew themselves during the progress of the disease, they must be combatted by the usual means, and in this the scientific practitioner is seen, whereas the empiric will trust to his nostrums and recipes.

MR. RADDALL, of Plymouth, followed on the same subject.

In conformity with your request, I do myself the pleasure of forwarding you, for the use of the Association, my opinion of the nature of the present epizootic now so prevalent among horses; having within the last few months had considerable opportunities of witnessing its ravages, as it existed in this locality.

I believe no one disease to which the horse is liable ever called forth such a diversity of opinion as to its nature, or was treated on such directly opposite principles as that now under consideration. Some practitioners (indeed, I believe I may say a great number) considering it to be in its nature inflammatory, commence their treatment of it by the use of the lancet, and the administration of laxatives, diuretics, febrifuges, &c.; while others dread the lancet as a fatal instrument in this disease, and proceed at once to the exhibition of stimulants and tonics. I am ready to confess that I place myself among those who adhere to the latter practice. Each party, however, views his own peculiar mode of treatment as the most scientific and successful; and yet, strange to say, both appear to be followed by the same results; viz. a convalescent state of the patient. Still, I cannot conceive that, if the disease were inflammatory, the exhibition of stimulants and tonics would prove so effectual as they certainly are, but would aggravate the more prominent symptoms, and hurry the parts on to a state of gangrene.

In all the cases I have seen—and I have in the majority of them been consulted early in the disease—they have exhibited

very marked symptoms of debility (in fact, debility has appeared to me to be the very essence of the disease). The pulse, in one or two instances, has been as low as 18 or 19 in a minute, and so very weak and feeble that the impression on my mind is, if I had abstracted three or four pounds of blood, the animals would have sunk under the detraction of it. In addition to the feeble pulse, in the majority of my patients, there has been a considerable swelling of the extremities, dulness of the eyes, an almost total loss of appetite, and a reeling gait when the horse has been led out of the stable. The extremities in others have not become in the least swollen, but were of a death-like coldness. The bowels, in some, have been constipated, but in the very great majority rather relaxed, and the fæces abundantly coated with mucus: there has also been frequent voiding of small quantities of urine. The conjunctival membrane has been injected; and in a few cases spots of ecchymosis have existed on the nasal membranes. Many patches of abrasion of the buccal membranes have been seen in others, with a fetid ropy discharge of saliva, and the respiration a little hurried.

All, I believe, agree as to the general cause of the disease; viz. the atmosphere; but the more important question that arises is, on what particular tissue does it exert its influence? My opinion is, that it is on the nervous, and that considerable analogy exists between this disease and typhus fever in the human subject. There certainly is a great depression of the vital and animal powers, evidenced by the extreme prostration of strength, the derangement of the functions of digestion, &c. I have seen but one or two cases where I could recognize local inflammation. The fact of the mucous membranes generally putting on a vascular appearance, is not to be attributed to congestion, but to a want of power in the bloodvessels remote from the heart to propel on their contents; consequently accumulation takes place, and a dilatation of the coats of the vessels, which may account for the red appearance of the tissues. May not the congested state of the extreme bloodvessels also tend to destroy the equilibrium of the circulation, thus lessening the quantity of blood propelled by the heart at each pulsation, and this, in some measure, account for the depressed state of the pulse and system generally? A sufficient quantity of blood not being exposed to the influence of the air in the lungs, will necessarily induce a change in this all-important fluid; and I have always remarked that in this disease it is of a peculiarly dark colour. The distended state of the legs is to me no proof of their being inflamed, this being merely the effect of a stagnant or retarded circulation; and, in some cases, effusion of serum to a considerable extent takes place. All this, I conceive, may be produced without the pre-

sence of inflammation. I would ask, may not the serum transude through the attenuated coats of the vessels?

A great difference of opinion exists respecting the infectious nature of the disease; and arguments *pro* and *con* have been adduced. As it is of much importance, I do hope the question will soon be decided. It is a question which the horse-owner generally puts to a professional man on calling him to attend any of his horses, "Are the others in danger? and will it be necessary to adopt any precautionary means for the rest of the stud?" These are the interrogatories with which he is met. For my own part, I invariably, when it is practicable, remove the sick from the healthy; but in such an important question as this is, where the health and lives of many valuable horses are at stake, I really think some conclusive experiments should be instituted. What would inoculation do? I have inoculated a few healthy horses with the saliva, tears, blood, &c. of those that were sick; and out of five cases that I have thus experimented on, the disease has made its appearance in four, in the course of a few days. The other, although I have inoculated him twice from two different horses, yet has not shewn the least symptom of disease. I have seen a few cases where the same horse has had two distinct attacks, and the second has invariably been more severe than the first. It was not a relapse, because the first attack had entirely left them, and the horses had returned to their former work.

I have based my treatment on the exhibition of stimulants and tonics; the liberal allowance of scalded bran and oats, carrots, and Swedish turnips, and as much exercise as the patient will bear in the open air when the weather admits of it. As the alvine evacuations have indicated derangement in the function of the alimentary canal, I, at first, generally give from four to six ounces of olive oil, as the case may warrant; after which I administer nitric and sulphuric ether, in doses of half an ounce of the former and two drachms of the latter, in a pint of warm gruel or ale. This is repeated twice or thrice a day, as the urgency of the symptoms require. I have given, in some extreme cases, two drachms of the liquor. ammoniac in a quart of gruel, with decidedly beneficial effects; and repeated it three times a day for two or three days in succession, or until the more urgent symptoms had subsided. I then substitute a ball composed of pulv. rad. gent., pulv. zingib., pulv. cinchonæ, et anisi aa ʒij, theriacæ vel saponis q. s. fiat bolus—giving one morning and evening. My patients have all recovered in from one to two weeks, depending, of course, on the severity of the attack.

By adopting this mode of treatment I have not lost a single case. Some few instances have fallen under my notice, where a chronic disease of the lungs previously existed; and these I have

found more lingering than any others. In a few, also, a troublesome cough has remained for some time, but that generally soon disappears.

I must now bring my imperfect remarks to a close, as time will not permit me to add any more. Much should I like to be present to hear the valuable discussion of the members of the Association on this interesting disease; but I hope soon to be favoured with a perusal of it in the pages of *THE VETERINARIAN*.

Your's faithfully, &c.

To this succeeded the following remarks

By Mr. J. TOMBS, of Pershore.

Influenza generally attacks horses in the spring and autumnal seasons. It is caused by atmospheric agency, and, when produced, is capable of being propagated by infection to others. It affects the whole nervous and muscular system—the head, the brain, the eyes, the Schneiderian membrane, the trachea, bronchi, and, occasionally, the substance of the lungs and mucous coat of the intestines: the extremities are also usually affected. These are my unbiassed and unprejudiced opinions of the malady under consideration.

The symptoms are, a disturbed respiration—the pulse ranges from 60 to 90, and is rather full for a day or two—the eyes are inflamed, the lids swollen, and tears overflow the cheeks—a great degree of coma—the animal does not lie down—the mouth is hot and dry—the vessels of the Schneiderian membrane are injected—the nostrils are expanded—the throat sore. Sometimes the disease is ushered in with griping pains of the intestines. After the malady has existed a day or two, the extremities become œdematous, and sometimes the lungs are inflamed.

The treatment that I pursue is very simple, and uniformly successful. As there is evidently increased vascular action going on, I always bleed moderately at the onset of the disease, and regulate the bowels by scruple doses of aloes. After I have got rid of the inflammatory blush of the nostrils, lowered the pulse, and slightly relaxed the bowels, I give nitrate of potash and digitalis. Great prostration of strength sometimes rapidly supervenes, and the legs swell tremendously. I then give mild diuretics and vegetable tonics. When the brain and eyes are very much affected, I open the temporal arteries and angular veins, have the eyes fomented, and insert a seton in the breast. If the lungs are inflamed—which is characterised by the general symptoms of that disease—I treat as for an ordinary affection of those organs; but I am sorry to say, that fatal mistakes are made now and then in confounding a quick respiration in the advanced

stage of influenza with that of inflamed lungs, which affections require opposite modes of treatment. In the one, the system wants *bolstering up*; in the other, broadsides of artillery must be fired into the dangerous enemy before it will relinquish its hold of the system. Nauseating doses of aloes have a very beneficial effect; but, if carried on to purging, their effects become disastrous. Whenever I find purgation has taken place, I immediately have recourse to astringents. I have had a great many cases of disease this autumn: but it appears to me to be a milder form of influenza than that which prevailed in the year 1836.

This disease generally terminates favourably; but sometimes in perpetual blindness, in laminitis, and cutaneous eruption, according to my observations. I shall not say any thing respecting the treatment of the two latter affections, as the practitioner would be guided by the circumstances of the case.

I fear it will be too much to hope that the Association will come to a satisfactory conclusion as to what peculiar state of the atmosphere the disease is referrible, such being the variations, hygrometric, electrical, and otherwise to which it is subject. Does it arise from any peculiar miasm diffused through this pabulum? If so, whence its source? These questions, I fear, are more easily propounded than answered.

This noble list of contributions was completed by a letter from Mr. TITCHMARSH, of Bishop's Stortford, of which the following is an extract:—

The term "influenza" I have abandoned, respecting the epidemic, if I may so term it, which has been and still is prevailing among horses in the neighbourhood of Bishop's Stortford. I view it as general inflammation of the mucous membranes, accompanied by fever of a peculiar nature. It is undoubtedly infectious. It appears suddenly, while the animal is in apparent good health. Not unfrequently it is ushered in by rigors. The earliest symptoms otherwise are, refusal of food; hurried breathing, differing, however, from that which accompanies inflamed lungs. The sound which is heard as the air passes through the cavities of the head is singularly unnatural. The pulse is quick and feeble, but there are exceptions to this—the debility and prostration of strength are very great—there is much restlessness—and the animal leans his head on every pillar of support—there is more or less confusion of the sensorium—the gait resembles that of man when under the influence of intoxicating liquors—and the countenance is anxious. At the expiration of a few hours we observe one or both eyes closed, with a purulent discharge from the inner canthus; the mouth is hot and dry, yet but little desire for fluids is evinced. The Schneiderian membrane, and that lining the mouth and co-

vering the tongue, is thickly studded with petechiæ; the breath and fæces are very fetid, sometimes voluntary purgation is present; but this is a rare case; cough more or less severe, with soreness of throat and an enlargement of the neighbouring glands, are general concomitants. It is somewhat singular, but upon an average, six cases out of ten suffer from extreme lameness of the near hind leg. I have nearly omitted one important feature, which is œdema, to a greater or less degree, in the cellular membrane in the neighbourhood of the lips, chest, extremities, &c.

Treatment.—I advise my patient to be placed in a loose box; clothe him warmly; allow him to respire cool and pure air, and administer medicines to rouse those organs that are indolent. If much bronchial inflammation exists, I cautiously bleed, and apply counter-irritants. I allow him to eat that which is most palatable to himself, not forgetting to give gruel and linseed tea. Such parts as are swollen are fomented, and walking exercise is allowed as soon as the animal is able to bear it.

I have had some desperate cases, but, happily, I have not lost one. The usual termination, if judicious means are resorted to, is in resolution.

Mr. Thomas Turner then rose, and thus addressed the meeting. Much had been written and much had been said upon the all-important subject which at the present moment occupies so much of the attention of the members of the veterinary profession, namely, the Epidemic or Influenza which rages among horses. He feared that he had little new matter to offer on this subject, or valuable information to place before them; still he thought that every practitioner was bound to communicate what had come to his own knowledge with regard to it. He was one of those who entertained the opinion that the disease arose from atmospheric influence. In that the malady had its origin. He did not feel himself called upon to enter very minutely into any detail either of the disease itself, or of the causes from which he conceived it to spring. In the few remarks he might submit to the members he should confine himself to facts; and that course he felt to be the more necessary as a practical man, because from what had taken place it was clear that there was a very great contrariety of opinion as to the best course of *treatment*. He would, therefore, commence by stating what was the treatment which he had generally adopted in the cases to which he was called. Still he must say a few words with regard to the character of the epidemic of the present period and that of the malady of 1836. In that part of the country with which he was connected, he did not believe that it raged in 1836 more than it did at present. This, however, he could say, that in those cases which had been brought under his notice, he had remarked that the attacks had been severe: they had been, probably, more violent at the period when he had been called in, namely, towards the commencement of the malady. The symptoms were, great prostration of strength, accompanied by tumefied eyelids, swelled legs, and a disturbed state of the pulse. The last was invariably one of the characteristics of the disease. The respiration was also disturbed. It was not usual for the owner of a horse to interfere with any plan of treatment that the practitioner might think it proper to adopt; but the Influenza being an unusual complaint, some of his employers had thought proper to ask what course of treatment he deemed it the best to follow. When such a question

had been put to him he had replied, "Leave the patient or patients in my hands, and I will do the best I can for them, according to my judgment."

He had lately had under his care sixteen farm-horses in one establishment. In every instance he bled, and with good effect, although, it is true, he did not bleed copiously. The quantity he had taken was about four quarts; and if he found that all the benefit he could wish had not been obtained, he did not hesitate, if the state of the patient seemed to require it, to repeat the bleeding on the third day—oftener on the third than on the following day. This plan had produced the most beneficial results; and the consequence was, that every one of the animals in question had perfectly recovered, and were at work.

He had, in his general practice in this disease, studiously avoided the use of aloes. He had endeavoured to procure a pultaceous state of the fæces by other means, and with great benefit.

He had caused the removal of the patients from the locality in which they had been attacked, and such removal had been productive of the greatest advantage. There might, however, be many members present who had not the same advantage with regard to an easy change of the locality of patients which was possessed by those who resided in the country; but he would beg to say, that where such a change of situation could be effected, it was, in his opinion, highly desirable. He did not mean that the patient was to be sent into a colder locality. One great object was, that the animal should respire its own breath only, and not that of another patient.

His plan of treatment had, in every instance, been of the most simple kind; indeed, there had not been one case in which he had given either narcotics or stimulants to any extent. He considered that good gruel—and plenty of it, too—was most desirable for the patients.

The Chairman.—Would Mr. Turner drench the patient?

Mr. Turner replied, that his patients had generally taken gruel freely; but there had been a few instances where the horn had been brought into play. In cases where the limbs were much affected, he had found that the application of bandages had been extremely beneficial: he meant that compression of the limbs which bandages of good length and breadth would produce. He believed that compression by means of bandages was a vast support to the absorbent vessels. It was not a tight and cutting pressure; but pressure applied equally and judiciously to the parts. In other situations, where he had had a smaller number of patients, he had invariably observed a similar treatment. In fact, whether his patients were in the valley, on the hills, or in the town, in all instances he had, with little or no variation, adopted the same treatment; and the best proof that it was a proper and effective treatment was, that he had not lost a single case.

In those cases where he had not found a pultaceous state of the fæces, he had given clysters with much salutary effect.

Before he sat down he begged to say, that he thought the warmest thanks of the Association, and of the profession generally, were due to Mr. Spooner, of Southampton, for the very able and lucid communication with which he had favoured them.—(*Hear, hear.*)

The President was anxious to hear what medicinal remedies had been applied by Mr. Turner?

Mr. Turner.—Sulphur in sufficient quantities, because he did know that sulphur in proper doses had a most beneficial effect. He gave, at the commencement, from two to four ounces, with half a pint of olive oil. It might happen to be necessary, when fever threatened, to administer a ball composed of tartarized antimony and nitrate of potash.

The President would feel obliged if Mr. Turner would favour the meeting with his opinion in reference to the disease being infectious, or otherwise.

Mr. Turner said, on that point he was inclined to think that all animals exposed to the same agency were liable to take the disease. He was, how-

ever, doubtful at present whether the disease could be communicated from one horse to another. He believed that the influenza was generally brought about by poisonous impregnations of the atmosphere, detrimental to the mass or herd, yet innocuous to a few; for healthy animals had been taken into the atmosphere where the disease raged without afterwards being affected by it.

The President.—Then Mr. Turner's opinion was, that the animals which were in the immediate neighbourhood where the disease raged would be more likely to have it than others that were not in that particular locality.

Mr. Turner.—Exactly so.

Mr. Braby said, that, on the subject of this epidemic, too much information could not be conveyed to the members of the profession; and it was the duty of every practitioner to record the result of his experience and the conclusions at which he might have arrived. It was this feeling which induced him now to present himself. He must, at the very commencement, be allowed to say, that his experience in the treatment of this epidemic had led him to differ very greatly from that adopted by Mr. Turner. The class of patients to which his attention had been more particularly called was that denominated the "heavy horse"—a class amongst which he believed the disease to have raged with the greatest severity.

With respect to the nature and causes of the malady, he perfectly agreed with Mr. Turner, that the disease was attributable to atmospheric influence. As to the all-important question, whether the disease was or was not contagious, he was inclined to think, that where there was no excitement of an unhealthy character in the horse, the animal might be in the same atmosphere—in the same miasma, as it were—without taking the disease; while another that was in an unhealthy condition would be seized with it. He would, however, remove a horse from an infected atmosphere as a point of prudence.

Immediately on being called in to a patient attacked by this disease, he ordered the animal to be removed at least half a mile away. Notwithstanding that precaution, however, instances had arisen where the disease had broken out in the very stable from which he had sent the original patient. It was, nevertheless, true that the disease in these cases had generally appeared in another part of the stable.

In the cases he had seen, the patient presented tumefied eyelids. The swelling of the legs did not generally make its appearance until the third or fourth day. The disease was attended with very great debility; indeed, that was one of the chief characteristics of the epidemic. In most of the cases there was some little inflammation about the throat, and the patient was, therefore, unable during its existence to eat his food—more especially oats, which the horse would refuse more than any other food, from the fact of their being of an irritating character.

In nine cases out of ten he did not bleed. The treatment he had generally adopted was, to give a draught composed of linseed oil and nitrous ether. He had carefully avoided the use of aloes, for he considered them to be deadly in their effects when employed in this disease. He had seen an instance in which one drachm of aloes had been more violent in its action than twelve drachms at another time. In fact, purgation, set up in this disease by aloes, was usually so great, that it was almost impossible to stop it. If there was any particular inflammation, whether local or general, he abstracted from four to six pounds of blood; but in most cases he had entirely abstained from bleeding. In a day or two, if the animal seemed disposed to feed, he allowed him any thing he would take; but he particularly recommended scalded oats and bran. He afterwards administered vegetable tonics, as gentian and ginger combined with camphor, twice a-day. The cases which had been attended with fatal results, were those where there had been a great deal of inflammatory action of the viscera or of the lungs.

Mr. Broderick had observed a very great difference in the disease. The cart horse suffered much more severely than the nag horse. As far as regarded the nature and character of the disease, as between that of 1836 and of the present year, he begged to remark, that he had noticed that the swelling in the eyelids and extremities, in the cases which had this season come before him, had not been nearly so prevalent or so violent as those of 1836; although in the present year there was a great deal of low fever and prostration of strength attending at the commencement of the disease. The general symptoms, nevertheless, were the same. On the subject of treatment, he was free to confess that he did not entertain that dread of aloes which it appeared some of their members did, and he had administered them with much success. He had usually given from two to three drachms of aloes in the first ball, and he had in no instance found it, in these doses, relax the bowels more than he wished, or produce any unpleasant effect. He had also given nitrate of potash, with, in some cases, tartarized antimony, and, after two or three days, he had added camphor with very marked benefit.

Two cases, after the second or third day, were attacked with *acute laminitis*. The shoes were immediately removed, and recourse was had to bleeding, fomentations, poultices. In one case the disease suddenly left the feet; inflammation of the lungs supervened, and the animal died: the other patient recovered his health, but the disease terminated in chronic laminitis.

The after-treatment he adopted consisted of the administration of vegetable tonics. There was sometimes great difficulty in restoring the appetite, and it frequently did not return for two or three weeks.

The President wished to know the opinion of Mr. Broderick with respect to the disease being one of infection?

Mr. Broderick did not think it to be an infectious disease.

The President would next ask Mr. Broderick whether he had bled in the majority of cases which had come under his notice?

Mr. Broderick. Yes; and the quantity of blood he had taken had been, of course, in all instances, governed by the state of the pulse. The quantity he had usually taken was about six or seven pounds—from three to four quarts; and he had found that the patient had been very much relieved by the operation, especially in the extremities.

Mr. Brady wished to say, that he considered the disease of the present year and that of 1836 to be similar, with this exception, that the disease of 1840 had not been quite so extensive—it had not raged to so great an extent. With regard to bleeding—upon one occasion he had tried it in a case where the pulse ranged between 80 and 90, and before he had got as much as four pounds of blood from the animal, the horse fell from excessive weakness, and he had great doubt whether he would rise again.

The President observed, that the members who had spoken had omitted to describe the character of the pulse. It was not sufficient to say that it was between 80 and 90: it was the peculiar character of the pulse that it was so desirable to know.

Mr. Brady.—As to the character of the pulse, in most of the cases he had seen it had been weak and soft; it had been so in eight cases out of ten.

Mr. Turner would mention, as an illustration of the good effect of bleeding, that, in a coal establishment, where there were no fewer than twenty-eight horses, all attacked with this malady, every one of them recovered after having been bled twice.

The President said, that the period of adjournment having arrived, the continuation of the present interesting discussion must be postponed; but he would take that opportunity of expressing a hope, that an equal number of practitioners would be present when the consideration and discussion of the subject would be renewed. He trusted to see the same good temper and the same energy manifested in the debate as had characterised the present meeting.

DECEMBER 8, 1840.

The PRESIDENT in the Chair.

Mr. E. N. Gabriel, V.S., and Messrs. Barnaby, Carter, Dyer, Fenner, James, and Lowe, students, were elected members.

Mr. Bowles, of Abergavenny, Veterinary Surgeon, and Corresponding Member, had sent some improved hobbles, which were laid on the table, and of which the following description was given by Mr. Sayer.

The improvement which Mr. Bowles had made in the hobbles invented by Mr. Gloag, V.S. to the 10th Hussars, was in the arrangement of the oval Ds or irons. These Ds on the leathers of the off fore leg and near hind one are on the long strap, whereas those on the hobbles of the inventor are on the short strap. By this ingenious plan, although it may appear but a trifling alteration, it will be found that the pressure which is imparted by the chain, when drawing them together, will of necessity force the oval D, or iron, against the anterior part of the square D, by which means no impediment will be offered to the facility of the passage of the chain when in action, and which has been found to be the case in the employment of the original ones. When Mr. Bowles's hobbles are thus arranged, the buckles will, at the same time, be outside the legs.

In addition to this, Mr. Bowles has constructed a new set of hobbles, to which he has given the name of CROSS HOBBLER. They are for firing horses while standing, shoeing vicious animals, docking, and various other purposes, for which they will be found extremely useful. They consist of a neck collar, to which is attached a broad leather strap, passing between the fore legs. A surcingle is passed over the withers embracing this strap, which reaches beyond the umbilicus; a D buckle is attached, with which are connected two chains about fourteen inches in length. These terminate in two Ds, to which leather straps are affixed for the purpose of buckling either below or above the hocks, thus confining the animal.

The PRESIDENT gave it as his opinion that the alteration in the hobbles for casting horses, suggested by Mr. Bowles, and so well described by Mr. Sayer, was a decided improvement, and calculated to effect the purposes intended by that gentleman.

The following letters on the epidemic among horses were read prior to the resumption of the consideration of Mr. Spooner's Essay.

The first is from Mr. Law, a student.

Mr. President and Gentlemen,—Having had the pleasure of being present at the reading of Mr. Spooner's valuable Essay on the last evening of meeting, I cannot refrain from stating some facts which have come under my notice respecting the disease designated influenza. The subject, unfortunately, is one of a very general character, and in the treatment of which so great a difference of opinion exists among veterinary surgeons that they are perfectly opposed to each other. Some advocate bleeding in all cases, others never bleed except in a high state of inflammation. Some give large doses of fever medicine, others stimulants and tonics, agents the very opposite in their effects; and, from their statements, success seems to be the attendant on all. It is to me quite evident that universal success cannot be the consequence of such opposite modes of treatment. To what must we attribute the general recovery of our patients? Is there nothing beyond the skill or judgment of man? I doubt not that many of the cases of influenza would get better without any medical treatment, or with good nursing alone, although I allow they would be a longer time in recovering.

The present epizootic appears to assume a very different character, taking it generally, from the one in 1836. We have not that degree of anasarcous swelling; but we have more of a hectic, or typhoid fever, with great debility, and yet not that extreme debility which attended the disease of 1836.

With regard to the primary cause, I concur in the opinions already advanced. I also believe it to be very contagious, not only in the same stable, the same miasma in which the horse is first attacked, but even if he is removed to a distant stable, where there were no symptoms of the disease, and placed among healthy horses, some, if not all, would be almost sure to be affected. It is true, that it is more contagious in the same stable or miasma which first gives the disease, or where it already exists. As an instance of its contagiousness, I will relate a case. A horse attacked with influenza was removed some distance to a stable free from the disease, one in health being sent into his stall. He was immediately attacked; also the horse which worked with the former one. They were both removed, and the stable thoroughly cleansed, the horse first removed being allowed to stand some time in a stable among healthy horses, while a box was got ready: in a few days two of these horses were attacked, and the disease spread throughout the stable to an alarming extent. From forty to fifty were ill at the same time. Some recovered, while others were attacked, and several died. In the whole, not less than 100 had the influenza, and nothing

but constantly purifying the stable after every horse seemed to stay the infection. If I am not mistaken, Mr. Spooner stated in his Essay that he gives the croton oil as a laxative, in preference to any other medicine in this perilous disease. I would ask, Is it not more unsafe than aloes? does it not cause greater irritation in the alimentary canal? I am of opinion it does, and that not so much reliance can be placed upon it as the common aloes.

With regard to the statement brought forward by Mr. Turner, I cordially agree with him that good nursing is the chief thing, and that but little medicine is required to assist the efforts of nature in restoring the machine to its proper function; but I cannot altogether agree with him as to the extent of bleeding. I do not see the necessity of abstracting the vital fluid in all cases, but a small quantity might not be injurious at the commencement of the disease, when not attended with the common extreme debility. In all cases, however, where much fever is present, and not much debility, I would commence my treatment by abstracting blood. It requires great caution in giving opening medicines. If purgation is ever set up, it is very difficult to stop; I have known two horses die from purging. Mr. Braby states that, in the heavy horse, he finds little or no fever at the commencement, but great debility and swelling; pulse from 80 to 90. He rarely bleeds, and gives little or no fever medicine. He thinks bleeding prejudicial, and, as a proof of it, he stated a case which had existed several days. There was great debility, and this rapidly increasing, with a weak, soft, and quick pulse: he then thought he would try the effects of bleeding; but, before he abstracted any considerable quantity, to his surprise, the animal fell, and lay for some time as though he would rise no more. In my humble opinion, had Mr. Braby bled the animal when first attacked, he would not afterwards have produced the effect which so much alarmed him. The great debility and the character of the pulse should have induced an opposite treatment. I perfectly agree with Mr. Braby on the post-mortem appearances, there often being nothing apparent to account for death—no particular organ being affected and the mucous membrane of the intestines only being slightly discoloured; with a few cases of congestion and partial inflammation of the lungs.

The second letter is from Mr. T. W. MAYER, V.S. and C.M.,
Newcastle-under-Lyne.

The epidemic which has been raging for several months in various parts of the kingdom made its appearance in the district of North Staffordshire about the middle of last September.

The first cases occurred among a class of horses that had been on high keep during the whole of the summer; some had been turned out to grass, others had been turned out at night only.

The locality of the first cases was a wet cold soil, upon large and extensive coal fields. The disease first took a north-west direction, afterwards a north-east, then southwards, and finally south-west. The greatest number of cases occurred during the months of November and December. It appeared in no degree controlled by the weather, and the greatest increase of the disease was at the breaking up of the frost. The complaint assumed various forms, diminished in their severity by the situation, food, and exercise the patient was accustomed to. In cold damp situations, especially if near water, the disease was invariably of a severe character. It appeared to be infectious, though in some instances horses remained in the midst of others having the disease without taking it. Sheep were also affected with it, and with them it assumed the same degrees of severity as with the horse.

INDICATIONS.

(A.) In many instances the disease made its appearance by a partial loss of spirits and appetite, stiffness of the limbs, prostration of strength, constipation of the bowels, hot mouth, yellowness of the conjunctive and buccal membranes, pulse quick and soft. About the 4th day, if the case went on favourably, the legs swelled, the mouth became moist, and the urgent symptoms began to diminish.

(B.) In other cases the animal was attacked with shivering, succeeded by unnatural heat of the skin; this was followed by another cold fit, cholicky pains, tension of the abdomen, sometimes soreness of the throat and preternatural thirst, accompanied by the whole of the above-mentioned symptoms in a greater degree. As the disease advanced, the eyes and legs swelled considerably, and there was oftentimes much deposition of serum under the conjunctiva: when the animal moved, or attempted to lie down, the joints made a crackling noise, like the breaking of rotten sticks; the pulse was quick and oppressed.

(C.) In other cases the disease assumed a more aggravated

and complex character. In addition to most of the symptoms already described, there were present great quickness of breathing, soreness of the chest, an intermittent state of the pulse which was frequent and small; but in some the breathing was stertorous, accompanied with frequent sighing; in others, there was lethargy, and even delirium.

In the first and second characters of the disease, if properly treated, it was easily controlled; in the latter, from its complex nature, the result was often dubious. In cases of the latter class, where the disease terminated fatally, the post-mortem appearances presented a general inflammatory state of the vital organs. In some there was an effusion of serum into the pericardium; in others, a gangrenous state of the lungs and liver; and in all, inflammation of the mucous membrane of the stomach and bowels. In a horse that suddenly died while labouring under the second form of the disease, I found the liver and spleen to be the organs principally affected; the former was gorged with bile and blood, the latter with blood only.

In SHEEP, the disease manifested itself in a similar way to the horse. There was a disinclination to move, a refusal of food, thirst, swelling of the legs and thighs, constipation of the bowels, or, if not constipation, diarrhœa, and hoose; in some there was quickness of breathing, accompanied with a yellow serous discharge from the nose.

From a consideration of the above-mentioned facts, I am disposed to consider the disease as a bilious fever, which makes its appearance in the three forms, A, B, C, which may be considered as simple, typhoid, and complex; each requiring a different mode of treatment. The first may be overcome by merely low diet, consisting of mash and plenty of oatmeal gruel. In the second form, blood-letting according to circumstances, with gentle laxatives, accompanied with febrifuge medicines, and succeeded by the use of tonics, will seldom fail to restore the health of the animal. In the third, the treatment must be prompt and energetic. Large bleedings quickly repeated, blisters to the sides and chest, setons, laxatives, low diet, such as linseed tea, gruel, &c., are the agents we must bring to our aid in order to accomplish our purpose.

The disease is not of a fatal character, but it affects the condition greatly, and renders the animal for some time weak and unfit for much exertion.

Trusting that these few imperfect remarks may be of interest to the members of the Association,

I remain, your's, &c.

The third letter is from Mr. G. T. BALDWIN, V.S. and C.M.,
Fakenham.

Dear Sir,—You ask my opinion on the prevailing Epidemic, or Influenza. Though conscious of my inability to do justice to the subject, yet I am willing to contribute my mite, poor as it is. When so many clever heads are at variance as to the *cause* of this disease, I certainly cannot presume to solve the mystery; but, in my humble opinion, it arises from some atmospheric influence, which appears to have more or less power in certain situations, for I have found it much more severe in one district than in any other in the neighbourhood.

Whether it is infectious or not I cannot determine, having had all the horses in one stable affected, while in another there has been only one diseased.

Symptoms.—When first called in I have found the pulse varying from 50 to 80 beats in the minute, and most commonly soft and feeble, with the respiration disturbed, and much quicker at intervals. In some, the visible mucous membranes are injected and discoloured; in others, it is yellow, shewing the liver not to be free from functional derangement; the eyelids are tumefied, the cellular tissue of the extremities distended with serum, and there is an increased secretion from the eyes. In some cases the pulse will be full and strong; the eyes very bright, with no effusion, and the extremities very cold: the buccal membrane white, or having a slight yellow tinge; the secretion of the mouth very offensive, and the coat staring and looking unhealthy.

I think I have now enumerated all the symptoms I have observed, except that, in a few instances, the throat has been sore, or some vital organ, as the lungs or liver, has been attacked, when, if the progress of the disease is not speedily stopped, it assumes a typhoid character, running its course very rapidly, in despite all remedial measures that may be adopted.

In the *Treatment* I am entirely guided by the symptoms that present themselves. My first directions are to remove the patient into as commodious and airy a box as possible, and pay particular attention to his diet, &c. Should there be much tumefaction of the eyelids, or the extremities be swollen, I do not have recourse to bleeding, but find gentle relaxing of the bowels of the greatest service. Afterwards I adopt the stimulating system, following it up with the vegetable tonics. Of these I have found Peruvian bark a most valuable therapeutic agent. When, however, the pulse is full and strong, I have invariably bled, and that with considerable benefit, the pulse being reduced by it, and the respiration becoming more tranquil. A gentle laxative is then given, and afterwards sedative and diaphoretic medicines.

Should the symptoms indicate an attack of the lungs, I have recourse to the usual remedies for that disease, freely using counter-irritation ; or if the liver does not healthily perform its function, the fæces being of a light clay colour, I give small doses of calomel.

Termination.—After we have subdued the inflammatory action, there is left behind much debility, which time alone, with tonics, will restore. When the lungs have been much involved, and the liver sympathising, some cases have bid defiance to all my efforts, and death has been the result. On a post-mortem examination, these organs have been found in a congested state, as if the capillaries had become so weak as to allow the blood to transude into the air-cells; the structure of the liver was softened, the pleuræ and lining membrane of the trachea had a gangrenous appearance, with effusion of serum into the thorax.

I had nearly forgotten to say, that I have had four or five cases in which the mouths have been affected similar to neat stock, but the vesicles were smaller, the horses having at the time a slight catarrh.

I am, &c.

Mr. Daws, in reference to the valuable paper which had been received from Mr. Spooner, of Southampton, and undergone a certain degree of pleasant and useful discussion at the last meeting of the Association, remarked, that that gentleman had propounded certain queries at the close of his essay which, doubtless, all present would feel obliged if the worthy Secretary would again read, as introducing the renewal of the discussion on the all-important subject of Influenza.

The Secretary would, with much pleasure, comply with the wish expressed by Mr. Daws. The questions were in substance these,—

1st, To what cause must they attribute the Influenza?

2d, Is the blood the seat of the disease?

3d, In what tissue or organ is the disease, if not in the blood, and in what does it consist?

4th, Is bleeding desirable?

5th, Is the Influenza infectious?

After a short pause,

Mr. Simonds, of Twickenham, rose and said, that no other member seeming disposed to speak, he would venture to present himself to the meeting for the purpose of offering a few remarks on this important topic. He must, however, confess that their friend Mr. Spooner, in his valuable essay, had so ably handled the subject that little indeed was left for any one to add. Although he had risen, he was not vain enough to imagine that much further light would be thrown upon the subject by his remarks. There was, indeed, no debateable ground left; and he was convinced that by far the larger portion of this meeting agreed with that gentleman in the views he had taken of the nature and treatment of this malady. Mr. Spooner, however, had thought right to put to us certain queries, on which it behoved each and every of them freely to state their opinion. The old adage might be verified, "that in the multitude of councillors there was wisdom." This meeting would, therefore, not be held in vain; but, on the contrary, he hoped that much valuable matter would be brought to light, and certain principles promul-

gated which henceforth might act as guiding stars for the veterinary surgeon when called upon to treat this insidious affection.

Every one, said he, who has attentively listened to this interesting debate, must be fully satisfied that Influenza owes its origin to some peculiar or morbid state of the atmosphere; and I feel quite assured that, should any of the students still waver on this point, they will, by instituting well-timed and pointed inquiries, have their opinion at once and for ever set at rest. What may be the state of the atmosphere which gives rise to this as well as other epidemics or epizootics, I am incapable of stating; for it does not seem to be produced from the disengagement of miasmatic or mephitic vapours in any particular locality. We find it in all situations—on the hill, in the vale, the stable, the straw-yard, the paddock; no locality seems to be exempt from its influence, although, as Mr. Turner had told us, horses in tip-top hunting condition are not so susceptible to its influence as others. This observation, however, does not exclusively apply to Influenza; for, I would ask, of what morbid affection are they so susceptible, when exposed to certain morbid causes, as horses that are not in the same condition, or that are out of condition? Future researches by chemists or pathologists might probably, and he hoped would, throw greater light upon the origin of this and other epizootics, and point out the peculiar state of atmosphere which gave rise to so many of the diseases to which man and the lower animals are susceptible through its influence.

The Nature of Influenza.—Here we seem to be divided in opinion, some considering it as a fever *sui generis*, others an inflammatory affection, and others a nervous one; while no small number among us view it as a disease of the blood; and I think, from the simple fact of the atmosphere giving rise to the disease, that this vital fluid is probably in some morbid or vitiated state. This condition of the blood may possibly depend upon the retention of constituents injurious to the frame, they not being separated from it with the same facility in its passage through the lungs, in order to be rendered fit, by the action of the air, for a second circulation and re-invigorating of the system; but, at the same time, I do not think that we are warranted by the symptoms in arriving at the conclusion that the blood is the seat of the malady.

I view this disease as a *subacute inflammatory affection of the subcutaneous cellular tissue and the mucous membranes, accompanied by a fever sui generis, which speedily passes from its active to a typhoid state*. When called to our patients, what symptoms, in the majority of cases, do we find? Such as may be easily explained in accordance with the above view of this disease: Swollen eyelids, suffusion of tears, a peculiar colour of the conjunctiva indicative of inflammatory action in that membrane, the respiration hurried, a tenderness on pressing the gullet, cough, the extremities alternately hot and cold, while œdematous effusion into the cellular tissue, if not already present, will speedily take place. The bowels are perhaps constipated in some, but in others relaxed; the appetite impaired, or, more frequently, entirely lost. Pulse increased, sometimes 80, 90, or more; seldom, and then only at the very first, having a bounding or full character, but a weak, faltering, tremulous, and generally an indistinct feeling; in fact, a hurried pulse, but still one of debility. The late much to be lamented Mr. J. Field took a masterly and highly scientific view of this disease, and he told us that in our treatment of it cathartics should be altogether avoided.

On this point I believe we are all pretty well agreed; but why should cathartics be thus avoided? The answer to this query will likewise much tend to solve the true nature of Influenza. Because the mucous membrane of the intestinal canal is in a state of erythema, consequently it is already too much disposed to take on a greater degree of inflammatory action; and we

are sure to hasten this if, by the employment of medicinal agents, we add to its excitement. Hence the necessity of great caution in administering such medicines.

I confess, however, that I am one of those who would rather dwell upon the nature of an affection, and investigate its true character, considering that it is far more important to do this than to be so anxious after inquiring, or even knowing, what will cure this or the other disease, or what medicinal agents should be given in any of the numerous affections to which our patients are subject. I am one of this school; because, having made ourselves completely masters of these matters, we shall never be at loss to combat this or any other malady, and that too upon scientific principles. I hold it, Sir, to be quackery of the worst description—the most dangerous because the most delusive—to lay down fixed rules for the treatment of disease; to say that, because a horse is labouring under an attack of gripes, he is to have administered to him so much tinct. of pimento, gin and pepper, or such like *nostrums*; to have *six quarts* of blood abstracted, to take *six drachms* of aloes, and afterwards a quart of soap and water with a handful of salt as an injection; or that, because he has got Influenza, he must not be bled nor take aloes as an aperient. Away with all such nonsense!—Treat your cases agreeably to the indications of their symptoms and the nature of the malady. Make yourselves completely masters of these by studying well their various causes and effects, and, depend upon it, you will be sure to have success crown your efforts, and to relieve the sufferings of your patients.

Perhaps, Sir, before I sit down, I should state that my experience in this disease would lead me, upon the whole, to adopt the tonic or stimulating plan; but, after the foregoing remarks, I need scarcely add that in some cases I should deem it prudent both to abstract blood and give aperients. Our principal restorative measures should be such as will husband, as it is called, the animal powers; and this is best done by the administration of mild and diffusible stimuli, such as *spt. æther nit.* and *sol. ammon. acetat.*, good nursing, removing to a different locality, and attending by topical treatment to the various symptoms which may accompany the disease. These, I believe, are the only true principles on which the Influenza can be successfully combatted.

Mr. Daws.—The opinion which I have formed respecting the nature of the disease under consideration is, that it is a fever *sui generis*, possessing the same characters as the low typhoid and scarlatina of the human subject, —every tissue of the body being more or less affected in proportion to the intensity of the attack; those parts situated farthest from the centre of the circulation, and less highly organized than others, as the flexor tendons, being very painful when attacked.

Its origin, like that of many other diseases, is spontaneous; but if we have had a prevalence of Influenza, we have had, comparatively speaking, much fewer cases of pneumonia, &c.; yet frequently we find the disease accompanied by pleurisy and other thoracic and abdominal affections.

However erroneous I may be in my conclusion, I consider the blood to be primarily affected by the inhalation of some poisonous miasma, and, in my humble opinion, the disease is by no means contagious or infectious.

The crisis of the disease is generally about the third day, when the fever appears to have arrived at its height.

The treatment will altogether depend upon the appearances, or rather the symptoms that are present during its progress. In the early stages, mild laxatives with diaphoretics will suffice, and render the attack less severe than if the case is suffered to remain without remedial measures for any length of time; but if the disease has been suffered to progress without re-

sistance for some days, local and general depletion may be required, exercising caution in the use of the lancet. Sedatives and diffusible stimulants may now be exhibited, and the vegetable and mineral tonics after the subsidence of the fever. Counter-irritants in the neighbourhood of the organs affected will also be serviceable. Purgation should be avoided as much as possible.

Blood-letting and the administration of aloes in this disease have been condemned by many gentlemen, and others have as highly lauded their utility. I for one, contend that the practitioner, either of human or veterinary medicine, does not possess two more powerful remedies with which to combat disease than *aloes* and the *lancet*; but if they are injudiciously employed, more destructive agents do not exist. As a purgative agent, what can surpass aloes? And with respect to bleeding, the peculiar tone and character of the pulse will be our only indication of the necessity of abstracting blood either in this disease or any other: in fact, the pulse will be the only sure guide to effect a happy termination of the case. I beg to add a circumstance passed over by many. Some horses have been rendered lame and unserviceable for many months after an attack of the Influenza, by a chronic inflammation of the mucous theca of the flexor tendons, this requiring the most active remedial measures, as blistering, firing, &c. before the lameness subsided.

Mr. Daws then added, that his experience of the disease had not led him to consider it as one of a contagious character.

The President would beg to ask Mr. Daws what cathartics he had employed?

Mr. Daws replied, that he had employed aloes in small quantities.

Mr. Wells said, in reference to the cause of this disease, it had been admitted that it arose from *miasma*, or a certain infection which by an unseen agency communicates itself to the animal frame. The action of this *miasma* upon the system might be such as to give rise to a sudden check of the perspiration, a result which might be an exciting cause of Influenza.

The symptoms in most cases, as far as he had been able to ascertain, were in the first stages nearly the same. The conjunctival membrane was injected and the eyes were swollen. Bleeding he did not think to be desirable unless there was a very strong pulse. In instances where he had been consulted, he had generally treated the patient thus; he gave a ball composed of a drachm of calomel, two drachms of tartar emetic, and two drachms of nitrate of potash. Of course, this was where there had been constipated bowels.

Mr. Markham, a gentleman not of the veterinary profession, but who had very great experience in horses, after having passed a high eulogium upon the paper which had been sent to the Association by Mr. Spooner, of Southampton, on the subject of the existing epidemic, went on to say that the disease of the present year, if not so fatal as that of 1836, was nevertheless quite as tormenting. In the latter year he had heard that the proprietors of horses had sustained great losses from the number of animals that had been destroyed by the Influenza. The disease appeared to him to be prevalent all over the country, and, being so, demanded the utmost attention and consideration from the practitioner. It seemed to be admitted on all hands that its cause was the atmosphere, and the influence which a peculiar state of that atmosphere had upon animals. That being the case, the origin of the disease did not consequently so much require the attention of the profession as that efforts should be directed to the question of its cure. The latter, therefore, had become the chief point for mature consideration and deliberation. It had been a matter of astonishment to him that one practitioner should say "bleed in all cases of Influenza," whilst another of equal talent exclaimed, "by all means avoid the lancet as an instrument of almost certain death." One said he would administer purgatives, and another warned

them to avoid the use of aloe. But, after all, there had scarcely been one of the gentlemen who had spoken on this subject who had said any thing about the character of the pulse. If he remembered rightly, there were in the volume of *THE VETERINARIAN* for 1836 as many as 160 cases, all of which had been cured, and where too, he believed, by far the greater number of the patients had been bled; and he himself had seen some cases in the country where bleeding had been resorted to most successfully in the early stages of the attack. If the pulse be at 70 or 80 in a minute, he would bleed, keeping the finger on the pulse until its violence had ceased. If the pulse was at 100 or more, then he would not apply the lancet, but would administer one or two drachms of aloe.

In some localities he was satisfied that the disease had been contagious, whilst in others it had not been distinguished by the same feature. In fact, on the hills it presented one characteristic, in the towns another, and in the vales another; it was altogether a different disease, although called by the same name. He much feared, where so much difference existed among the profession with regard to the best course of treatment for the Influenza, more particularly as related to the propriety or otherwise of bleeding, lest an opinion might spread itself amongst the owners of horses to the effect that there was no occasion to call in the advice of a veterinary surgeon. All he would say on that point was, that if he were the proprietor even of a single horse, and that animal were to be attacked by the disease, he should instantly send for the assistance of the best veterinary practitioner he could find, and leave the horse entirely in the hands of that gentleman, to be treated as he might deem the most advisable. The surgeon should bleed the animal or not, as he might think proper; and he should feel perfectly satisfied whether that plan were adopted or not, under the conviction that he had called in a man of science and talent and professional ability.

In reference to what he had said on the subject of various localities having produced a difference in the symptoms of this disease, he would remark, that in one situation the horse was found under an attack of Influenza, having swollen eyes and lids, with the skin very much affected. Probably in such a case the disease was mainly in the skin and neighbouring membranes, while in another locality the animal would be found with no swelling about the eyes or lids, but having a violent sore throat, cough, and congestion of the membranes of the chest, amounting in some instances almost to bronchitis.

The President.—Yet the disease, presenting these different appearances, Mr. Markham believed to have its origin in one common cause—Was it so?

Mr. Markham.—Undoubtedly.

Mr. George Fisher's attention had been first called to this disease in the case of a horse, then under its influence, which was the property of a veterinary surgeon in Bristol. The owner had shortly before given £70 for it. When he saw the horse, it presented the common appearances of Influenza. There was injection of the mucous membrane, and considerable swelling of the extremities, sheath, &c., accompanied with general lassitude. The surgeon to whom the patient belonged treated it as a case of bronchitis, by copious blood-letting and purgatives, and the result was that he died. The owner then purchased another horse, which was taken to the same stable, and soon taken ill and presented the same appearances. The medical attendant treated this horse in the same way, and a like result ensued.

A third case, under the hands of the same veterinary surgeon, presented exactly the same appearance as the other two; but so bigoted was the medical man (the same gentleman who had attended the former horses) to his own opinion with regard to the course of treatment, that he adopted in this

instance precisely the same means and applications as in the preceding cases. Of course the consequence was similar, and the animal died.

The owner of this horse was afterwards so unfortunate as to have another horse taken ill, and at length, not feeling altogether satisfied that the others had been properly treated, he had it sent to his establishment. On examining the patient, he was inclined to entertain an opinion that the disease had not been properly treated by blood-letting and purging, and consequently he adopted a different course. He caused the animal to be turned into a large box, and administered plenty of warm gruel, took away all hard food, and gave nothing but bran mash and scalded hay. He then gave him nitre, camphor, and tartarized antimony. In three weeks the horse recovered, and returned home to his work.

With respect to horses in high condition, in reference to the violent action of this disease upon them, he begged to say, that the establishment with which he was connected had fourteen of that class. They had been taken up from summering, full of flesh, for the purpose of being physicked, when they were seized with this complaint. All of them, in fact, had it, more or less; but by the application of plenty of good gruel and the medicinal remedies he had already mentioned, together with small portions of gentian added (after the bowels had assumed a proper tone), they every one got well.

He agreed in the opinion, that a horse in high condition was less likely to take the disease than any other; but still, even with high feeding, the disease was communicated, and therefore he considered the Influenza to be infectious. In the cases which he had met with, the pulse had been accelerated and feeble.

Mr. Sayer would beg to ask, whether any *post mortem* examinations had been made of a horse which had died with this disease.

The President replied, that it had been stated by the author of the essay, as well as by other practitioners, that they had had opportunities of forming opinions from such an examination.

The hour of adjournment approaching, the PRESIDENT proceeded to sum up the debate as follows:—

It must be well known to many present, that when this subject was last introduced by our Patron, *Mr. Sewell*, he, in common with others, offered to the notice of the Association the views he had then been induced to take of the disease under consideration. These views having undergone some little modification, he was, on that account, inclined again to occupy a little of the time of the Association; and more especially from the circumstance that *Mr. Spooner*, to whom we are much indebted for a clear and concise account of Influenza, was a fellow-pupil of his, and one of those whom he was proud to number in his list of friends.

Every veterinary surgeon should take into consideration the constitution of his patient, and the circumstances under which he may be placed; these rendering him more or less liable to disease produced by the impression of external agents. Thus, one animal in a certain locality will altogether escape contagion, while another shall be attacked with the disease in its most virulent form,

and a third shall be only slightly affected by it. Thus different animals in the same locality, labouring under disease arising from the same cause, will manifest symptoms varying in degree and intensity, and each will call for a different mode of treatment to be adopted, so as to restore health. If this position is tenable, are we to be surprised at the very marked difference in the symptoms and treatment and results of Influenza, as they have been communicated to us by our corresponding members and others, residing in districts remote from each other?

And, not only do certain localities produce variations in the phenomena attendant on this disease, but the period of the year also appears to have a remarkable influence on the type or character it may assume. As illustrative of the different susceptibilities of animals, how common it is for one to receive a simple abrasion of the skin, on which no serious consequences supervene; while in another, from a similar lesion, high irritative fever is set up, and a fatal result is apprehended! He agreed with those who have preceded him, in attributing the Influenza to some peculiar state of the atmosphere; he did not, however, conceive it to be referrible to any particular degree of temperature, but rather to the presence of some poisonous agent or miasm in the air. What that agent is, he, of course, was unable to say. It may produce its effect on the system by being absorbed into the blood of the animal, and, by an impression upon the nervous system, cause the untoward symptoms characteristic of this affection.

This, then, is a disease wherein both the nervous and vascular systems are involved. That it is in its nature febrile, there can be no doubt; resembling scarlatina and often assuming a typhoid form. Therefore he was not surprised to find that its presence was associated, at one time, with a pulse of an inflammatory character; while at another great peculiarity of the pulse and a feebleness of the heart's action and general prostration characterized it.

Its indications would appear, in the first instance more particularly, to be shewn by a tenderness of the skin and sub-cutaneous cellular tissue, together with an inflamed state of the mucous membranes. In some cases we find the former only to be affected, in others the latter. He concurred with Mr. Simonds in thinking that these changes in the cellular and mucous tissues might be regarded by many as the original disease, whereas, in fact, they were only the consequences of a primary deranged state of the vascular and nervous systems, as before stated.

As it respects remedial measures:—It is of the first importance that we should ascertain the precise state and character of the pulse, for by that we must be entirely governed with regard to the use of the lancet. And, next, as to the condition of the bowels.

In one patient there will be constipation, while in another the faecal matter will be soft. According to these symptoms, then, it was clear every practitioner ought to be guided in respect to the course of treatment he should adopt.

With regard to bleeding, he must say that, in the numerous cases which had been treated by him, probably in six instances out of ten, he had felt himself warranted in the detraction of blood; indeed, he had found, when depletion had been resorted to, that the animals had manifested a disposition towards recovery more quickly than those who had not been subjected to blood-letting. This was one point in which he at the present time differed from the opinion advanced by him upon the same subject three years ago. Subsequent experience and consideration had satisfied him, that, in cases where the state of the pulse, &c. will warrant a detraction of blood, the use of the lancet may be most beneficially resorted to, but only with extreme caution.

When circumstances have demanded the use of a cathartic agent, he had employed aloes, not entertaining those fears which have been advanced by some of the members of the Association of the effects produced by this drug. It was not the use but the abuse of aloes to which objections could be raised. Frequently he had given it in combination with calomel, and, generally speaking, had found that he was not required to repeat the dose. The grand point in all these cases was, not to give too much, for if we did, we were likely to set up an inflammatory action in the intestinal tube, thereby, as it were, igniting a fire which oftentimes it was impossible to quench. The symptoms, as they regarded the pulse, were as different and variable as the winds. If any one of us had five cases, the chances were that the pulse of each would be different. It was not in all cases when they found a quick pulse that the veterinary surgeon would be warranted in the detraction of blood, but it was in those cases where the artery was full or bounding under the finger.

There were cases in which the abstraction of comparatively a small quantity of blood would afford the relief required. From the peculiar character of this disease, it appeared that the detraction of one pint of blood would produce more effect than in common inflammatory affections. They ought not to forget the action of the artery, nor the effects which too great a depression of the vital energies might lead to. The disease in its early stages may generally be successfully combatted by mild treatment, and he could not but think, that the frequent repetition of medicine was calculated to do harm rather than good.

After the subsidence of the inflammatory stage, sedatives may be advantageously employed, particularly after bleeding has been

once had recourse to, and the pulse still keeps up in its number of beats. Among the therapeutics that had been advocated, he knew of none equal in value to the extract of belladonna, given in the form of a draught, with the solution of the acetate of ammonia, and occasionally adding the spirit of nitric æther. As soon as the symptoms warranted the exhibition of tonics, he had found the sesqui-carbonate of ammonia, combined with gentian root, highly efficacious. In these remedial means he would especially enjoin the removal of the animal to a pure and cool atmosphere, added to which should be careful nursing. These things he felt assured would materially tend to bring about a restoration to health.

As respected the contagious nature of Influenza, he was decidedly of opinion that it is highly so.

In conclusion, he begged to express his individual thanks to Mr. Spooner for having introduced this subject to their notice, and he was sure that this testimony of their regard would not be withheld.

DECEMBER 15, 1840.

The PRESIDENT in the Chair.

Messrs. Parker, Salter, and Wraith, students, were elected Members.

Mr. Daws then placed on the table the diseased hock of a horse, of which he gave the following account:—

The lesions which were apparent had been the consequence of a punctured wound near the hock joint. There had been a great deal of inflammation around the joint, as well as about the wound itself. The accident occurred on the 24th of October last. Little progress was made towards a cure, and in the early part of the following month the horse was regularly slung. No improvement resulting, he advised the owner to have him destroyed, and which was, with much good feeling, immediately consented to.

Having removed the leg, he had it forwarded to the Association, that the members might be enabled to observe and duly appreciate the lesions. He had not made any section of the part, in order that the students might have an opportunity to examine it for themselves.

The injury appeared to have been inflicted by the corner of a shovel, on the outside of the joint. Soon after he had been called on to attend the case, he had deemed it advisable to apply the actual cautery, but, after the sloughing that ensued, the wound had become much larger than before.

The President and Mr. Daws then proceeded to make a section of the part, during which the immense thickness of the integument, and of the cellular substance around the joint, was remarked. The original wound had healed up externally, but, on exposing the articular surfaces of the tibia and astragalus, there was found considerable inflammation, extending over the greater part of the joint, particularly in the centre, which readily accounted for the excessive constitutional irritation, and the inability to flex or extend the limb.

The following letter from Mr. BATCHELDER, V.S., of Grantham, referring to a singular morbid growth on the small intestines, was then read :—

“ You have probably, ere this, received a parcel from me. The morbid specimen it contains may or may not be thought worthy of your notice ; but as I have never seen, or even heard of a similar case, I have been induced to send it to you. The part itself will require no comment from me, otherwise than observing that it is a portion of the ileum, about four feet from its termination in the cæcum.

“ The subject of it was a valuable hunter, the property of Sir T. Whichcote. He had had frequent attacks of obstinate constipation of the bowels of late. I attended him about a month since, and, after an entire suspension of the evacuation of fæcal matter for several days, he became relieved all of a sudden, which I attributed more to a change of position of the intestine than to the medical treatment I had adopted. He, however, remained in perfect health until November 26th, when I was again called to attend him. From the symptoms present, I gave it as my opinion that, if he did not then die, he eventually would, from a similar attack, for there must be some mechanical cause existing to produce the frequent returns of illness.

“ He did not express that acute pain we usually see in common cases of colic ; but it was more constant, and he kept continually wandering about the box, occasionally lying down for half an hour at a time. The treatment I adopted will at once appear satisfactory to every one ; but knowing it to be a mechanical obstruction of the gut, or rather, I would say, believing it to be so,

I gave large quantities of the oleaginous purgatives, considering them to be the safest, while, at the same time, they assist in diluting the contents of the intestines.

"On the 29th of November his bowels responded pretty freely, and continued to do so for several hours; but suddenly they ceased to act altogether. The horse now became alarmingly ill, and marked symptoms of approaching dissolution began to shew themselves. He died on the evening of the 30th. A post-mortem examination, of course, ensued, and, excepting the portion of intestine I have forwarded for your inspection, I will endeavour to give you a description of the contents of the abdomen, &c.

"The peritoneal investiture *generally* had a slight blush upon it. I should not call it inflammation, neither was the lining membrane of the intestines much affected. Their contents were in a semi-fluid state; the large ones, however, were almost empty; but the small ones were much distended with pultaceous matter, together with the stomach. The latter organ, where it lies in contact with the liver, was discoloured. This, in my opinion, resulted more particularly from the extravasation of bile after death; for the liver, if I may be allowed so to express myself, was completely saturated with it; and the mucous membranes, generally, were very much discoloured by it. The mesenteric vessels in the neighbourhood of the morbid part were many of them very much thickened, and in a state of scirrhus. Every other viscus was as healthy as could be expected, when the cause of the death of the horse is considered.

"On seeing the parts, a question will probably suggest itself to you, Was the horse in high condition? In horsemen's phraseology, he was in "no condition at all;" neither did he appear to have much fat upon him; but being an old horse, he did not shew what in reality he had.

The following letter from Mr. STEVENS, V.S., of Newmarket, bears so much on a similar subject, that it is introduced here:—

"I have thought the following cases of intestinal disease may not prove uninteresting nor profitless, since, during life, there were no indications that would apprise us of the lesions that had taken place; and, very often, we suffer in the estimation of those who are unacquainted with the difficulty that exists in drawing a correct prognosis.

"In the treatment of our patients we are compelled to be governed by symptoms alone, the collateral aids which the human practitioner has being denied us. There may be this

advantage, that we are seldom deceived by them; but who can tell the amount of assistance afforded in arriving at a true diagnosis, when the tongue is enabled to explain certain sensations, and the hand points out the part affected!

"It will be seen, that in the first case the symptoms were exceedingly obscure, indicating, in fact, an affection of viscera not contained within the same cavity; and yet I cannot but think that I was fully justified in adopting the treatment I pursued.

With every good wish,

I am, &c.

CASE I.—My patient was taken ill about eleven o'clock in the morning, having refused her corn. The respiration was observed to be hurried: she was bled, and I was sent for.

I saw her a little before one o'clock: the pulse was then about 80, and hard, and the breathing very laborious. She was standing with her fore legs extended, as if to obtain as much room for the lungs to play as possible. I had her removed into a cool loose box; her legs bandaged, and I raked and clystered her. The bowels were constipated, and she retained the clyster for some time. I then left her for an hour.

On revisiting her, I found the pulse had increased to 90 in frequency, and was of the same character; the breathing was even more laborious. I then abstracted seven quarts of blood, repeated the clyster, and gave a ball, containing aloes vulg. ʒi, ant. tart. ʒi. I had the legs hand-rubbed and re-bandaged, and blistered her chest and sides—the symptoms, as far as I could observe, being those of acute pneumonia.

I continued with her about two hours, and, as the symptoms did not in the least subside, I had very little hope of recovery, fearing that some internal organic disease existed, I left her, ordering her another ball and clyster at 6 p.m.

About 9 p.m. I was sent for again, and found that the symptoms had increased to an alarming extent. Pulse 100; animal staggering about the box, and blowing tremendously. She would not so much as look at food or drink from the moment she was taken ill.

At eleven o'clock she fell, and died after struggling but little. As she lay dying, a groom who first observed her ill, informed me that what earliest drew his attention to her was her scraping her litter back; and when he went to tuck it up, he found she had not eaten her second feed, which caused him to report her to the coachman. From this I was still more convinced I should find full and ample cause for death from some organic disease; but as I had not heard of or seen any symptom of acute pain,

I was led, from the symptoms, to consider the case one of inflammation of the lungs.

“ Post-mortem examination.—The lungs were very much gorged with blood, and flushed with recent inflammation, but had no appearance of any disease of long standing—the abdominal viscera were all in a perfectly healthy state, with the exception of about a yard of the ileum, on the centre of which I found a small orifice, large enough to introduce the finger, the edges of which appeared uneven and ulcerated in the superior part of the intestine, and through this opening had escaped a mass of half-digested food, quite dry, about the size of the extended hand, which had formed for itself a peritoneal covering, for it lay between the reflections of that portion of the membrane that forms the mesentery. The detached peritoneum looked black, and the surrounding parts were much inflamed.

“ CASE 2.—Last Sunday I examined an old blind cart mare, that died on the preceding evening. She had an attack apparently of spasms about a fortnight before, and she was bled by the owner; but not getting any better after four days, I was sent for. I found her pawing her litter, and frequently lying down, then rising and eating, and again pawing, kicking her belly, and lying down. The owner informed me that she had, for the last four days, been down the greater part of the time, apparently asleep, and had not evinced so much pain until that morning: he fancied that it proceeded from worms. The breathing was hurried a little when the pain came on, but the pulse was at its natural standard, and soft. As the animal had been so lately bled, and was in low condition, I merely gave her an antispasmodic draught with aloes dissolved in warm water, clystered her, and blistered the abdomen, as the pain seemed to increase. The dung was in an ill-digested state, very offensive, and covered with mucus. I saw her the next morning, and found her much better, and feeding; and, the day after, she was still improving. I now left six balls, containing aloes $\mathfrak{z}\text{i}$, calomel $\mathfrak{g}\text{i}$, and directed one to be given night and morning until she purged.

“ I saw no more of the mare professionally until last Friday (having seen her the Monday previous, and she was then in the stable with the other horses, although not at work), when I found her in a great deal of pain; the pulse 60, and the respiration laboured. I bled her to the amount of eight quarts, back-raked and clystered her, and administered an antispasmodic draught, with $\mathfrak{z}\text{vi}$ of aloes in solution, and blistered the abdomen. I waited some time, and repeated the clyster, but no fæces were passed.

“ I saw her again on Saturday: she had been apparently free from pain all day; she had drunk two quarts of warm water, but

refused food. The ears and nose were icy cold; the pulse 90; the respiration laborious. These symptoms indicated that she could not live long, and she expired about six o'clock in the evening.

"I found, upon inquiry, that they had never given her the calomel balls as directed, or they might have had a beneficial effect in clearing the intestines.

"*Post-mortem examination.*—The anterior half of the left lobe of the lungs was very much hepatized, but the remainder was in a perfectly healthy state. The stomach was healthy, and filled with fluid. The duodenum had a small orifice through its parietes and peritoneal covering on the right side, a little anterior to where the biliary duct empties itself, which appeared ulcerated through; the remaining small intestines were healthy, and full of fluid; the cæcum was healthy, but the large curvature of the colon presented a most extraordinary appearance. The infero-anterior surface, to the extent of a foot or eighteen inches in every direction, was very much discoloured; the parietes of the intestine were also considerably thickened, in some places upwards of an inch; and when cut, had very much the appearance of an indurated lung, with patches of black apparently extravasated blood, and cysts of pus. It was distended enormously with dry fæces, and ruptured in the anterior extremity, through which some dung had passed out into the abdominal cavity, as had also a quantity of medicine and fluid from the rupture in the duodenum."

The President said, that the communications just read by our Secretary admirably bear out the remarks I was induced to make at the commencement of the Session,—that we are much indebted to those practical friends who accompany the morbid parts they may forward to the Association with the history of the cases in which they occurred. Thus accumulated facts will be obtained, whence we may safely draw inferences that, on the occurrence of similar cases, may lead us to a correct prognosis.

The symptoms presented by the cases recorded by Mr. Stevens were extremely occult; nor was it possible, during life, that he could have anticipated such a result.

The fatty tumour transmitted by Mr. Batchelder deserves from me a few passing remarks. Rarely, if ever, is such a specimen to be met with as that now lying before me. On each side of the jejunum is seen to exist a tumour about the size of a cricket ball, the one being connected with the other by means of a peduncle. On cutting into them it will be seen that they are made up of layers of adipose matter, imbedded in cellular tissue, and each is invested by mesenteric folds of peritoneum. From

their situation, such was the pressure imparted to the intestine, that from time to time a stricture was induced on that part of the alimentary tube; and this will account for the attacks which the animal so frequently experienced prior to death. The tumour itself presents no indication of increased vascularity, but the portion of the gut anterior to it is much inflamed; this undoubtedly was produced by the stoppage of the onward progress of the ingesta by the constriction before adverted to.

The treatment adopted by Mr. Batchelder was highly judicious, in my opinion; it however is evident, that only temporary relief could ever be obtained. A liquefaction of the food by the aid of medicaments was attended with a corresponding benefit, as was proved; but all remedial measures that could have been adopted must have been perfectly ineffectual in removing such a mass of fatty matter. This also was another instance in which no one could have prognosticated the existence of such an abnormal formation.

The Secretary said, the present was the first occasion since the establishment of the Association that their opinion, as a body, had been requested on any particular disease. In the present instance, the application had been made by a continental veterinarian, Mons. Lecoq, Secretary to the Veterinary Society at Calvados and La Manche. The fact that such an application had been made was sufficient to shew that the name and reputation of the Veterinary Medical Association of England were held in no very mean estimation by those of other countries.

The members of this Association, however, were indebted to their kind and able friend, Mr. Ernes, for the translation of the paper which he was about to have the pleasure of reading. Indeed, they were under very considerable obligations to that gentleman for the trouble he had upon this, as well as upon many other occasions, taken. The subject of the Memoir was relative to a peculiar disease to which the "foal" was liable; and he believed it was pretty well known that a disease similar to the one treated of by M. Lecoq was prevalent in England. He was certain that that gentleman would be most happy to be put in the possession of the treatment of any case which might have fallen under the notice of the members present; indeed, this was the object he had in view in addressing them.

Memoir on a peculiar disease of the Foal, vulgarly termed Fourbure, or fourbature (foundered), in the departments of Calvados and La Manche. By M. LECOQ, Veterinary Surgeon at Bayeux, Secretary to the Veterinary Society of Calvados and La Manche, Member of the Royal Society of Agriculture and Commerce, at Caen, and of the Linnæan Society of Normandy, &c. Translated from the French by Mr. ERNES, V.S., of London.

At the different meetings of the Veterinary Society, I had occasion to read several observations relative to the disease called *fourbure* in the foal. The favourable reception which they met with, induced me to think that they might be of greater interest if they were collected and printed in the shape of a Memoir; and, having accomplished this, I sent it to the Royal Agricultural Society of Paris.

The kind reception it met with there, and the publicity that was given to it by that society in having it inserted in the *Recueil de Médecine Vétérinaire*, tom. ix, year 1832, pages 457-513, was a great encouragement, and induced me to hope that it may not be an unimportant addition to veterinary science. This caused me to revise the work, and new observations having confirmed my former views, they have enabled me to give a greater development to my ideas.

May it meet with the approbation of my colleagues of the Veterinary Society to whom I now humbly present it.

AMONG the different diseases which affect foals, and cause at times severe losses, there is none that has such truly disastrous effects as this peculiar disease, termed *fourbure*. It either terminates in death, or leaves organic lesions that are often difficult to remove, and at all times very difficult to conquer. This malady seems to be enzootic in the departments of Calvados and La Manche, and more particularly in the district of Bessin and Bas Cotentin. The losses sustained by those who speculate on breeding horses often amount to one-fifth of their young stock yearly.

Although it has in this manner obtained a distressing celebrity, I am not aware that any work, or even pamphlet, has been written on it by a member of the veterinary profession; I, therefore, will endeavour to fill up this vacancy by describing what I have been able to collect by careful observation on the symptoms and pathological lesions consequent upon it, and also the probable causes and the most rational treatment of it. I sincerely hope that these general observations may be useful, if not to the profession

in general, at least to those who may chance to settle in localities that may bear a strong resemblance to our own; for there is little doubt, in my opinion, that the principal cause is purely local.

The essential pathognomonic character of this affection is the swelling, accompanied by lameness. The swelling may be more or less, and in different parts of the surface of the body, but it is generally about the articulations of the extremities.

This is the general appearance of the disease, and so well are the breeders acquainted with it, that it is a common saying with them, "lame foal, lost foal."

Certainly there are other symptoms, but they do not belong exclusively to this disease, and are not always a necessary concomitant of it. These are anorexia, dulness, a state of coma; the foal not following its dam, and not gamboling as is usual with young animals; a staring coat, tightness and adherence of the skin; a fulness and frequency of the pulse; the visible mucous membranes injected, and sometimes of a yellow colour; the mouth clammy, the tongue coated with a yellowish sediment, and the borders of the tongue red; the urine small in quantity; the alvine evacuations hard and coated, or colic and diarrhœa being present. When these symptoms are united, and from five to six days have elapsed, without the treatment adopted having produced any amelioration in them, but, on the contrary, the morbid phenomena have increased in intensity, and the stercoral evacuations are found soft or liquid, and of a greyish clay-like appearance, then the prognosis, as to its termination is of the worst kind. If, on the other hand, after a certain time the symptoms diminish, then the natural functions will resume their course, and a return to health will soon follow.

A remarkable character of the tumours of which I have spoken as a pathognomonic symptom, is their great mobility, or the quickness and facility with which they change their situation. In fact, nothing is so common as to see these swellings in the course of a few hours, and even a few minutes, vanish from one part, and almost at the same time, or shortly after, make their appearance in some other part of the body, more or less distant from the original seat, or, perhaps, on the opposite side of the animal. It is the same with the lameness, which I have frequently found changing from one leg to the corresponding one of the opposite side; or from an anterior to a posterior limb, and *vice versâ*. These changes are unfavourable, the termination being then generally fatal.

The tumours are seldom accompanied by much heat—they are indolent, and, in general, the lameness is not considerable; but

they are often of very large size. If the treatment does not effect a resolution of the tumours, they will form extensive collections of purulent matter, which corrode the surrounding cellular tissues, and separate the integument from its attachments. The muscles are isolated, and appear as if dissected out. I have seen a great many of these abscesses (as they may more properly be called), in one of which I made an incision at the most elevated point, at the same time so directing the opening that the matter might evacuate itself. It was situated on the superior part of the hock. Between seven and eight pounds of unhealthy pus escaped, without smell, of a turbid appearance, and holding in suspension a great quantity of albuminous flocculi.

Every means should be tried to prevent suppuration from taking place, particularly when the swelling is situated in the neighbourhood of any of the articulations, because the spongy extremities of the bone are speedily stripped of their periosteal covering, and, becoming inflamed, exfoliate, and cause a discharge of an unhealthy character, which it is difficult to arrest, and speedily brings the patient to a complete state of marasmus.

At times the disease seems to be only local, and its seat the articular regions. In this case the symptomatic fever is only slight and the disease is easily subdued by proper means.

The first indications of the disease will seldom last above five days. Its duration varies in proportion to the intensity of the attack. The medium term may, however, be fixed at from fifteen to twenty days. When beyond that, it assumes a chronic character, and its duration is altogether uncertain.

A *diathetic* suppuration (if I may be allowed the expression) then establishes itself; abscesses form on the different parts of the body, which are filled with thick white pus; the little patient gradually loses flesh, and, at length, falls into a state of marasmus leaving no hopes of recovery. Sometimes it lingers, and daily pines away; and the owner is, at length, compelled to destroy it, in order to put it out of misery. The age at which foals are most subject to it, is from birth to four months old: they are seldom, if ever, attacked after that age.

Post-mortem appearances.—These vary, according to the seat of the disease. The cellular tissue of the dorsal and lumbar regions, when death has not immediately followed the attack, are partly destroyed by numerous abscesses which have detached the integument from the subjacent tissues, and this, perhaps, had not been suspected during the illness of the animal. If other subcutaneous abscesses have existed, they are easily discovered by the lesions which they have effected in the parts. When tu-

mours have existed on the articulations, and have not proceeded to suppuration, they will in general disappear during the latter stages of the animal existence; and on dissection, nothing is seen except a serous infiltration of a citrine colour and gelatinous consistence, the surrounding tissues shewing a rose tinge; the margins of the synovial membranes are also reddened, even those that had not been tumefied.

Should the inflammation have been very considerable, and caused extensive and numerous abscesses, they will in general be found in the interstices of the muscles between the layers, and situated next the articulations.

The cellular tissue has acquired a tinge varying from red to black, and contains a thick pus, of a greyish red colour, and offensive smell. The synovial membranes of the tendons, as well as those of the articulations, also vary in colour from red to black, and contain a quantity of turbid synovia of a whitish colour; or they are filled with purulent matter of a white yellow colour. The diarthrodal cartilages are of a greyish hue, more or less inclined to dark, and covered with numerous small spots of a rose colour, inclined to a black; this depending upon the intensity of the disease. The spongy tissue of the extremities of the bones presents a blackish hue.

Almost in every case the abdominal cavity contains a considerable quantity of reddish-coloured serum. More than once I have found signs of intense inflammation in the umbilical vein and the uretus, which was not obliterated; and sometimes purulent matter much formed there. The mucous membrane of the stomach and duodenum exhibits signs of diffused inflammation, and is of a reddish colour. The lymphatic ganglia of the abdominal regions have always appeared to me be the seat of alterations, varying in appearance according to the intensity and duration of the disease. They are found sometimes to have assumed the shape of oval tumours, of different sizes, and of a grey or red colour, having a scirrhus consistence; and at other times they have proceeded on to suppuration. It is not rare to find in the abdomen pathological alterations of different shapes and sizes.

Like the abdomen, the thorax also presents many morbid changes, and contains a quantity of serum of a red colour. The lymphatics are either enlarged and hard, or soft and ready to suppurate, containing a quantity of white pus, of a more or less offensive odour. The thymus gland, in many cases, is completely disorganized, it being changed into the same diseased production which we have remarked in the abdomen.

The brain and spinal marrow have never undergone any considerable alteration or morbid change.

Causes.—Without being able to assert any thing decisive as to the real cause of this disease, I am of opinion that it is often produced by sudden changes in the condition of the dam before and after parturition. The mares are subject to different kinds of work up to the latest period of parturition, and are fed in the stable on coarse and dry food; often insufficient in quantity, and taken at irregular intervals, according to the different tasks that are imposed upon them. If we reflect on the effect that must be produced on the animal economy by the sudden change to a green and plentiful diet, and the freedom from labour granted to them from the moment that they have cast their foals, we have a clue to the origin of the malady. These circumstances give rise to a superabundance of milk, and the little animal which, during its foetal life, hardly received sufficient nutriment for the development of its frame, must feel the consequences of it. An excess of nutriment induces a state of plethora, the evil effect of which is soon felt.

If this should prove to be a correct theory, there is no locality where its effects would be more felt than in Bessin and Le Bas-Cotentin. It is a flat country; the ground is marshy, and is intersected by numerous streams of different magnitude. The meadows are productive of rich and abundant pasture, most of it being grazing land.

To this principal cause others may be added. Thus it has been imagined that it may arise from letting foals suck the whole of the milk of the mother, after the latter has travelled far or fast, or been submitted to other hard labour. The exposure of the foal to cold and damp air immediately or soon after birth, by falling into a ditch, or remaining a considerable time with its legs in the water, as may frequently occur in marshy countries, are powerful causes of disease. They are, however, only occasional causes. There is another cause, the result of a ridiculous prejudice entertained by the ignorant, which is, that if new milk from the cow is not given to the foal directly after birth, if it was afterwards to fracture any bones, the union or callus would not take place. In this view they make them swallow such a quantity of milk that it induces indigestion, which not unfrequently gives rise to the *forbeture*, and death is often the consequence. At least, this is what I have had occasion to observe many times.

These are the things which a long course of observation induces me to consider as occasional causes of this complaint. I have purposely omitted to allude to the different temperatures of the

air during the different seasons of the year, for no one is ignorant of their influence on the development of disease in general. As to the predisposing causes, I candidly acknowledge my ignorance; and all the researches I have made have not thrown much important light on them.

In this disease two prominent facts present themselves, 1st, a local *lesion* or (alteration) which cannot be overlooked, and the inflammatory nature of which cannot be doubted, though it may not at all times assume the regular character of acute inflammation, it always shews the result of it, viz. a deposit of matter in the synovial cavities, and œdematous tissue of the cellular tissue. No one would contend that pleuritis is not an inflammation, because it is of the plastic and adhesive, and not of the suppurative kind; and that the affection having run its course, or part of its course, on one point, it changes to another: this does not prove that the disease is not of the inflammatory kind. Besides, there are proofs that pus has been formed in the articulation as well as in the cellular tissue. Then we have here a local alteration, produced by inflammation. 2dly, There is a general alteration of the blood. This fact is sufficiently proved by the former. It would be difficult otherwise to account for the inflammatory signs in the blood taken from the patient, viz. the small quantity of serum, and the size of the buffy coat in proportion to the coagulum. There is in this case a superabundance of fibrine in the blood; hence the general symptoms. Does the local affection precede the general? It is not in my power to answer this question: it will be sufficient for the veterinary practitioner to know that both affections co-exist.

Treatment.—The result of the above description of the nature and character of this disease is that two indications present themselves in respect to the treatment to be adopted. 1st, to modify the general state of the body, which is not in a state favourable to the cure of the disease; 2dly, to combat the local affection by the most appropriate means in our power.

It is important, in order to adopt a rational plan of treatment, to take a retrospect of the general state of the disease, and recollect what has been said of the tumours as being characteristic of the disease. We must not forget that some are distinguished by heat, tension, and pain; in fact, they present to us all the characters of acute inflammation. The means to be had recourse to in the treatment of such as these are evidently antiphlogistics, applied with some caution; for we often witness how dangerous the total absence of all phenomena of reaction, or even their dispersion, in these cases is. In others the phenomena of irritation do not exist to any appreciable degree; there is no heat,

and little or no pain. The tumours either made their appearance in this state, or passed into it after the inflammation had run its course in the usual way. However, in these cases, we should not hesitate to bring back the symptoms of reaction, except there is some particular indication to the contrary: for this purpose local stimulants are best calculated to effect our desired end. It is from reasoning on these principles, and after having tried a great number of different curative agents, I have fixed on the following, which have always proved most successful. In the beginning of the disease, if the parts are tumefied, hot, and painful, I practise one or more bleedings at the jugular, according to the symptoms; while repeated emollient lotions are applied to the tumefied parts. If, on the contrary, there is not much heat or pain, if the skin is not ulcerated, the above treatment would be dangerous, for it would without fail induce suppuration. This I have more than once found, and I have stated above how much such a termination is to be dreaded, and if possible to be avoided. Recourse should be had here to topical repercutients, or rather resolvents and astringents, as the cold bath, a refrigerant lotion, or astringents made with ferruginous compositions. I generally use a solution of the sulphate of iron, to be employed several times in the course of the day. The success I have obtained from this agent since I have had recourse to it has fully convinced me of its efficacy. It cannot be repeated too often, for we should at all events prevent the tumours from suppuration, and by these means, resorted to in time, I have often succeeded. Neither the heat of the parts, nor even the beginning of ulceration, would be a sufficient counter-indication to the use of repercutives.

If the tumours are accompanied by great pain, the agents must not be so active. Tonics might then be used with advantage instead of the astringents; but I can only lay down general rules, the exceptions must be left to the judgment of the practitioner, the treatment being varied according to the different indications.

If, as it often happens, the internal organs participate in the inflammatory action, the general antiphlogistic mode of treatment is the one I adopt, and excretories (setons or rowels) have in many cases proved very good auxiliaries.

When the digestive tube is not affected, it might be acted on with great advantage, in particular by those agents that are possessed of diuretic and sudorific properties. Cathartics are seldom of any benefit; they debilitate too much, without modifying the general state of the patient; often they bring on inflammation of the stomach and intestines, and thus aggravate and complicate the evil. I have adopted them in the beginning of

my practice, at a time when I was not free from old errors, and I have often had reason to repent of having employed them at all.

When the general symptoms disappear, and the disease continues its inflammatory character, I practise phlebotomy on the vessels nearest to the seat of the disease*. Neglecting the bleeding would be giving time to the disease to establish itself, and resolution would be no longer possible; while we should be continually tormented by, I know not what, for this morbid principle is concealed from our view, the presence of which is incompatible with life, and of which nature will try to get rid by suppuration, a crisis effected at much expense of the vital powers, and of which the results are so dangerous; because the capsular ligaments, as well as those of the tendons and of the articulations, do not easily admit of the discharge of purulent matter; and when this does happen, it is always followed by very serious consequences, and which too often lead to the loss of the animal, or the rendering him useless if life is preserved.

Nor must we forget that all internal inflammation, whether of the mesenteric or bronchic ganglia, or the abdominal or thoracic viscera, which is allowed to pass from the acute state of inflammation to the chronic, is followed by dangerous consequences. The patient almost always perishes, unless the inflammation is confined to a small portion, and therefore does not cause great alteration in any of the vital organs.

In the treatment of the disease in the foal we must not neglect the dam. If the latter should be over-fed, and in a state of plethora, she must be reduced progressively, but not too rapid, by a low diet. This is a fact so well known to many breeders, from their having witnessed the good resulting from it, that it is a common practice with them, as a means of preventing the disease, to send the dam into the poorest pasture, where, in fact, there is little more than the bare ground to scratch. It would, in my opinion, be preferable to keep her in the stable for the few first days after parturition; at all events, this is a good precaution, and there is danger in neglecting it. I recollect one instance, among others, which I witnessed soon after I left the veterinary school of Alfort, in 1822. A proprietor had two very fine foals, from fifteen to twenty days old, and in perfect health; he however fancied that the mares had not enough to eat, and changed them to a more luxuriant pasturage. Three or four days after the foals fell lame, and subsequently enormous tumours, followed

* If I have abstained from stating the quantity of the blood taken, and the doses of the medicine to be given, it is that both must be modified according to age, size, and constitution of the animal, and the intensity of the disease.

by an abundant suppuration, developed themselves, and death was the consequence of this imprudent act. But let us leave this digression, which is not of much utility for the etiology of this disease, and return to the treatment.

In the same manner as the dam, so must the foal be deprived of a part of its nourishment: this is easily done by milking the mare. The nature of the diet in the foal must be in accordance with the state of the digestive organs.

The tumours, and in particular those that surround the articulation, as we have remarked, having passed to the chronic state, become indolent, and more or less hard. In this case, stimulants must be had recourse to. I am indebted for the cure of many cases to the early employment of the bichloride of mercury and turpentine, 1 part of the former to 10 of the latter: but if after a time this has no effect, I would advise the actual cautery.

The prophylactics that I propose are not new; they have been long since employed by enlightened veterinarians, and the good resulting from them establishes their efficacy.

As soon as possible after parturition the mare should be turned out into a dry elevated pasture, particularly where the grass is not abundant, and not too much exposed to the cold; for if the foal happens to be an early one, he will obtain shelter from the weather. If, after these precautionary measures, the milk should still be too abundant, the mare must be milked: and it is only after three or four weeks that she may be gradually brought back to a richer and more abundant pasturage. If it is necessary to work the mare, it must be only moderately; and when she comes in, before allowing the foal to suck, the milk that is stagnated in the udder should be drawn by the hand. Some breeders are in the habit, a short time before parturition, of passing setons to prevent an attack of the disease; but I have found them not only useless, but occasionally they have been a cause of the disease shewing itself, because they will rot out a short time after parturition; and the discharge of pus being suppressed by metastasis, disease may fall on the organs of lactation, and the young animal suffer all the evil.

The treatment I have recommended is not that which was in use some time ago, and which is still adopted by those veterinary practitioners who think that the disease is developed under debilitating causes (a position I have refuted in the beginning of this memoir), and that it is humoral and its nature cold. To combat it they employ frictions of an irritating kind on the tumours, whatever might be their character, and then purgatives are administered, followed by excitants and bitters or ferruginous com-

pounds. This is nearly the same kind of treatment as that adopted by our empirics, only that they make it more active by the dangerous addition of cordials, such as wine, alcohol, &c. mixed with oil and common salt. Such was the mode of treatment I found in repute on my arrival from the school of Alfort; but a few post-mortem examinations, and several trials, soon convinced me of its irrationality and frequent failure.

I ascertained that, instead of the causes being debility, they arose from a cold damp air, combined with an exciting diet, and sometimes immoderate exercise. The result of the exciting treatment, and in particular when combined with purgatives, almost invariably brings on the febrile symptoms, which some practitioners regard as favourable; but during their development the tumours assume the suppurative form, or a metastasis takes place on the mucous coat of the intestines, and death soon follows. I have seldom seen a favourable result follow this treatment; and should a cure take place, it is always preceded by a long state of convalescence. It is not that I would reject, in every case, the administration of tonics internally; but I am of opinion that they only can be safely given when the muco-gastro-intestinal membrane is sound, and they seem necessary to promote digestion.

In conclusion of all that has been stated, the disease called *fourbure des poulains* (foundered) in the foal is far from being known, and it is necessary to make new researches to appreciate its nature and its seat. It seems, however, that the parts that surround the articulations and the ganglionic system are more especially affected, and that the lameness and tumefaction (more or less painful) of the articulations constitute the pathognomonic symptoms. The affections of the articulations may change from one articulation to another, either on the same leg or to the other not hitherto affected, with an inconceivable ease and quickness, and that the system, dietetic and antiphlogistic, is more or less complete according to the case. Topical repellents, exciting or even irritating stimulants, applied according to the period or the character of the swellings, are the base of the treatment.

ILLUSTRATIVE CASES.

CASE I.—A foal, the property of M. Thorel, cultivator, at Osmanville, born the 10th of May 1833, the produce of a bay mare, four years old, in tolerable condition, was on the 5th, with the dam, put on an abundant pasture, and in an elevated situation.

22d.—A tumour presented itself on the left knee, without lameness.

23d.—I was sent for. The swelling was more developed—temperature almost normal—evident lameness, but the animal lively, and appearing not to be otherwise affected. Friction once a-day with strong vinegar on the affected parts.

26th.—Complete resolution.

30th.—The right hock was much swelled. Repeat the former treatment.

June 5th.—The hock is in the same state—the thigh, towards the coxo-femoral articulation, much swelled, with a little increase of heat, and lameness—the pulse is quick—the mucous membrane of the nose injected—the tongue is slightly coated with a whitish coat—the foal is dull, and does not suck much. Apply an emollient lotion to the part, and give purgatives, as rhubarb, manna, and senna. The diet of the dam to be restricted. Four ounces of sulphate of soda were given to her without much effect.

7th.—Augmentation of the symptoms—the tumour on the thigh increased in size. Repeat the physic.

8th.—Fluctuation of the tumour, which was punctured; about a pint and a half of thin sero-purulent matter escaped, in which were observed some albuminous flocculi. Dress the wound with a decoction of marshmallows.

10th.—Swelling of the hock diminished—the foal is more lively—the suppuration of the abscess healthy—lameness still present. Give extract of gentian with powdered juniper berries, of each two drachms, of bark and of peroxide of iron two drachms and a half, and two pounds of infusion of absinth; half a pint of the mixture to be given morning and night.

13th.—Abundant suppuration. Dress with tincture of aloes.

16th.—Suppuration diminished—more lively—sucks well.

26th.—Patient died suddenly, without any alteration having been perceived in his general state.

Autopsy.—No trace of inflammation in the articulation first affected. In the surrounding cellular tissue I perceived a slight yellow tint—the synovial membranes were a little redder than natural—the muscles of the thigh, where the abscess existed, were as if dissected, the cellular tissue being destroyed. The superior part of the femur was completely deprived of its coverings. On opening the abdominal cavity, about a pint of reddish-coloured serum escaped—the umbilical vein was filled with white pus—the mucous coat of the urachus, the fundus of the bladder, the pyloric portion of the stomach, and the double colon, were slightly inflamed—the mesenteric and meso-colic glands ap-

peared red and enlarged.—*Thorax*. The thymus gland was the seat of a collection of purulent matter—the bronchial ganglia had a slate-coloured tinge—the other organs were healthy—the brain and its dependencies offered nothing unusual.

CASE II.—A foal, the property of Mons. D., foaled on the 1st of June, 1823. The dam was in good condition, and a seton had been passed before parturition. About the 20th, the foal was affected by a swelling at the scapulo-humeral region, accompanied by lameness. Friction, with essence of turpentine, was applied to it by a pretender.

The owner, finding that there was no improvement, sent for me to attend it. The 10th of July I found the parts in the neighbourhood of the articulation so hot and painful, it was impossible for the animal to sustain the weight on the suffering limb. I ordered a purge, composed of senna and manna, and emollient lotions to the parts. The purge had a slight effect.

17th.—Fluctuation—a puncture was made anterior to the articulation, and a counter-opening behind the shoulder near the elbow: about a quart of sero-purulent matter escaped, in which were seen some albuminous flocculi. The whole was dressed with a slight detergent.

August 1st.—Abundant suppuration. On introducing a flexible probe into the superior opening, it turned round the shoulder behind the scapula and came out at the lower opening. I ordered injections, with equal parts of red wine and water, in which honey had been dissolved.

28th.—The animal cannot put the leg to the ground—the shoulder is emaciated—the suppuration is less abundant. Dress it with hot wine.

September 2d.—Discharge is very offensive—suspicion of caries of the bone. Dress with tincture of aloes and camphorated spirit, with one-eighth part of turpentine.

19th.—No doubt remains about the caries—some portion of the bone has been detached—the foal is very much emaciated. Same treatment as before.

29th.—There is no hope. I advised the owner to have the patient destroyed: this not being done, it died on the 3d of October.

I could not be present at the *autopsy*, but desired that the shoulder should be laid aside for me. I found the superior portion of the humerus, at the trachinian eminence, denuded, soft, and friable.

CASE III is that of a foal, the property of Mons. C., at Isigny, dropped on the second of June, 1825, the produce of a chestnut mare three years old, in good condition. A seton had been passed a few days previous to parturition; at the same time, the mare had been turned out into an excellent pasture.

16th.—The foal was affected with diarrhœa. I was called to attend it. The following symptoms presented themselves:—the pulse frequent—the tongue coated with a greyish matter. The animal dull, and looking at its flanks—slight colic—the mucous membranes highly injected. Give rice-water with gum. Restrict the diet of the mother, and bleed her, &c.

19th.—Diarrhœa continued—some streaks of blood were mixed with the evacuations—swelling of both the fetlock-joints of the hind extremities—lameness of the left hind leg.—Continue rice-water, to which add two drachms of catechu. Friction on the parts with vinegar.

21st.—The evacuations are of a more consistent nature, but of an ash grey colour. Continue rice water, with the gum.

25th.—Died.

Autopsy.—Abdomen. About two quarts of serum of a reddish colour were found in the cavity. The peritoneum was inflamed in several parts—the abdominal lymphatic ganglia were red, and of a larger size than normal—inflammation of the mucous membrane of the intestines. The umbilical vein contained a quantity of pus, the other organs were normal.

CASE IV.—A foal belonging to a merchant at Isigny, was dropped on the 12th of April, 1826, from a well-bred mare in good condition, and turned out in an abundant pasture. During the night of the 25th and 26th, the foal fell into a ditch full of water, where it was found in the morning. In the afternoon of the same day, it was seen holding up the right fore leg, and unable to rest upon it. The pulse was full and frequent; the conjunctiva injected; and the mouth hot; but the animal was still lively. Take ten ounces of blood. Let the mare's diet be restricted.

28th.—Tumour on the right knee, impossible to rest on the leg. The pulse not so full—diminution of heat in the mouth. Give of rhubarb and senna two drachms in one ounce of syrup of buckthorn, and four ounces of water. Apply lotions of a watery solution of sulphate of iron to the affected parts.

The 1st of May able to rest on the leg. Continue the lotion.

The 12th —Discharged cured.

[M. Lecoq relates six other cases, in only one of which the treatment was successful. We will take the first of them.]

CASE V.—A foal, the property of M. F., cultivator, at Vouilly, foaled on the 1st of May, 1826. The dam, a bay mare, 6 years old, out of condition, having been hard worked.

I was called in on the 23d, to attend the foal, it being lame of the left fore leg; there was a tumour on the fetlock joint. The foal was in seemingly good health. Friction with vinegar on the tumour.

25th.—Resolution.

26th.—Left hock swelled—pulse full. The friction as before—seton in the chest. Purge with rhubarb and aloes, 2 drachms of each, syrup 1 ounce, water 5 ounces.

30th.—Resolution of the swelling of the hock, but the right scapulo-humeral articulation as well as the knee of the same side are tumefied, with much lameness. Repeat the purge and friction.

June 6th.—The tumefaction considerably diminished—the seton is in full suppuration—the foal is lively. Continue the friction. Give one drachm and a half of nitrate of potass daily in warm water.

The owner impatient at not seeing the foal recover as fast as he wished, sent for an empiric, who immediately applied friction with camphorated brandy and essence of turpentine on the tumour, and administered brandy, oil, and common salt; afterwards cordial powders were given in strong doses, composed of theriaca and asafoetida. This medication aggravated the disease, and the owner sent for me a second time to attend the patient if there was yet a chance of success left.

On the 3d of July the foal fell, in a state of debility (marasmus). The eye was sunk, the mucous membranes pale, the tongue coated with a greyish sticky coat, the breath offensive, the alvine evacuation of an ash-colour, the pulse small and wiry, the foal seldom sucking. I communicated to the owner my apprehensions of the little chance of success, and after the account of the incendiary means that had been employed, it was not difficult to prognosticate that death was at hand. The disease, however, was suffered to pursue its course. On the 7th the animal died.

Autopsy.—The cellular tissue of the parts that had been first affected conserved a yellow reddish tint, the skin was separated from its adherence in several places of the lumbar and dorsal regions, where small abscesses existed and contained a greyish pus.

The abdomen contained about one pint and a half of a citrine-coloured serum—the peritoneum was slightly inflamed—the lymphatic ganglia much enlarged—one of the mesenteric ganglia was

as big as a walnut ; three meso-colic ganglia were of the same size, two of which were softened, and would soon have suppurated. The gastro-intestinal mucous membrane was inflamed.

The thorax contained about a pint of serum, similar to that in the abdomen. Slight traces of inflammation were found in the pleura of the diaphragm. The right lobe of the lungs was hepatized. The other organs were normal.

M. Lecoq concludes by stating, that this memoir was read at the section of medical sciences of the scientific congress held at Caen in 1833, where he verbally maintained the opinion that this disease bore a strong analogy to the (*carreau*) *tabes mesenterica* or *scrofule mesenterie* in young children. This gave rise to the following discussion.

Dr. Trouvé, in laying great stress on the mobility of the articular tumours, the generally acute form of the disease, was inclined to think it bore a stronger resemblance to rheumatism.

Dr. Pellerin was favourable to the last opinion, as well as to the general causes assigned.

Dr. Hunault d'Angers found that the articular tumours bore a strong resemblance to similar tumours in the human subjects affected with scrofula.

Dr. Lafosse said, that, to appreciate duly the nature of this disease, and its analogy with any similar affection in the human specie, it should not be considered isolated or on too narrow a scale ; and he maintained that the divers local lesions are only the explosions of deeper seated and more general alterations of the economy ; but in considering the *ensemble* of the phenomena, the indolence and the usual seat of the tumours, the peculiar character of the inflammation which sometimes follows, the nature and quantity of the pus, the general and constant alterations of the ganglionic system, it would be impossible to deny that in this disease, as in scrofula, the lymphatic system was not the principal seat of the disease ; although the course of it in the foal is frequently acute, and more so than in young children ; and although this difference establishes a most important distinction as to the treatment, yet it is not sufficient to destroy the analogy between the two affections, at least as far as regards their seat.

Mr. Daws commenced the discussion on this valuable paper, by saying that, about twelve or fourteen years ago, he remembered two cases of a similar description to those detailed by M. Lecoq. They were two foals that had been bred in the neighbourhood of Tottenham. Both cases terminated fatally. They had extensive swellings of the joints, and were altogether unable to stand, or scarcely to move. The disease, however, was not one that frequently fell under the notice of the town practitioner.

Mr. Donaldson said, that in the country whence he came—the northern part of the kingdom—this disease generally attacked the patient in the stifle or the hock. The treatment observed, and with favourable results, was the stimulation of the parts affected, and the administration of alterative medicine to the foal. As soon as the young animal could eat corn, he was permitted to do so, and this frequently appeared to protect him against disease, and to restore him when attacked. There was a great deal of uncertainty about the complaint—sometimes it was very fatal, and at other times comparatively very few escaped. Nothing was done to the mare, unless to place her on better diet. The foal of the heavy horse seemed to be most subject to this malady, which was usually considered and treated as the result of debility, and not of plethora. In his county the disease was called “the joint evil.”

Mr. Ernes observed, that he had travelled much in breeding countries, both in this and in foreign realms. About two years ago he was in Lithuania and Poland. Both countries are well known for their breeds of horses, and particularly the former for its royal stud Traheham. The farmers in all these districts were breeders to a very large extent, there being no less than from ninety to a hundred horses on every square mile. He had made particular inquiry respecting the diseases of the colts and their dams; but he did not see any cases similar to those described by M. Lecoq, nor hear of such a complaint occasionally prevailing. He believed that the complaint was of a scrofulous nature, and peculiar to marshy countries, in which the temperature was variable. If this were true, the countries to which he alluded would be comparatively exempt, as there was but little marshy ground.

The mode of feeding might also have some influence on it. The habit of giving oats to the foals as soon as they were able to masticate them, as was done by the breeders in Lithuania, would strengthen the constitution of these animals, and go far to prevent all scrofulous complaints.

Whatever information could be elucidated on this subject would meet with every attention in the Veterinary Society of Calvados. In fact, the sending of the memoir, while it was a testimony of their esteem and confidence, was partly prompted by their desire to learn how far the disease existed in other countries, and what were the means adopted for its prevention or cure.

Mr. Brown had seen many of these cases. It had generally appeared in the knees and stifle joints. There was considerable swelling of these joints; and such was the opinion of the breeders with respect to its frequency and serious character, that it was termed “the evil.” The disease often shifted from joint to joint, and in such cases it was almost invariably fatal. Gentle aperient medicine was given to the little patient, and his strength supported by occasional stimulants, among the most frequent of which was the spirit of nitric ether.

Mr. Barth related an instance where a mare and foal had been turned out in the salt marshes near Swansea, and when he was called in he found the colt very lame in the near fore leg. It appeared to him at first that the lameness had been caused by a blow, but it was set down as the effect of the copper smoke. He had used the customary means for the purpose of reducing the swelling, and bled the foal in the arm. The next day he administered a

dose of physic. He then discovered that there was lameness in the opposite knee, and that a considerable swelling had come on during the night. The foal continued lame during several days, when this peculiar lameness appeared entirely to have left the patient, and the disease manifested itself in the shoulder. He had never seen a case of the kind before, and he was inclined to imagine it to be rheumatism. He had the foal under his care for three weeks; and, the mare being very poor in condition, he had ordered a more liberal treatment. Eventually the swelling subsided, the lameness gradually disappeared, and the colt, at the period when he left it, was in full health. At first the attack had been set down as the consequence of the copper smoke; others conceived it to be simple tumefaction in the knee; but he had been of opinion that it bore more of a rheumatic character. He merely hinted at this case, being confident it was analogous to the disease under discussion.

Mr. Twimberrow observed, that rheumatism in the horse was, generally speaking, of a very different character. He had seen many of these cases before he had thought much of the veterinary art. Since that time he had frequently met with them in foals, and also in calves soon after they had been weaned. He considered them to be more connected with poor feeding than with any thing else.

Mr. Hepper was of the same opinion. It was almost in every case referrible to debility. Nothing could be so erroneous as to connect it with plethora. The fault lay principally with the mother. The milk was destitute of those nutritive qualities which were necessary for the proper growth and development of the foal. It was not often that he administered any medicine to the foal in these cases, but he changed the diet of the mare from grass to hay and corn, and the result was commonly favourable.

Mr. White.—This disease arises in some instances from the natural weakness of the animal, or his being exposed to wet or cold; but, generally speaking, it is to be traced to hereditary predisposition. I have seen several foals, all from one mare, affected with it. This hereditary predisposition likewise prevails in the calf. Some writers have attributed it to the faulty quality of the milk of the dam; but I have known many foals attacked by it a month or more after they have been taken from the mother.

In the early stage of the disease the animal is dull, and will not follow its dam. Sometimes there is considerable febrile derangement in the system; at other times the disease is purely local.

In the neighbourhood of the affected joints there is more or less swelling, and, generally, a high state of inflammation. Occasionally, the swelling quickly shifts from one joint to another. This is a very unfavourable symptom.

Bleeding is always indicated where the inflammatory action runs high, and the breathing is disturbed, and the pulse is quick and full. Afterwards, *if required*, should be administered combined with febrifuges. The state of the bowels should be particularly attended to. Rowels should be inserted in the chest or thighs, or in the neighbourhood of the affected parts, and lotions frequently applied to the enlarged joints; for it is advisable to prevent the suppurative inflammation if possible.

Mr. Sayer said, that knowing of the intended introduction of Mr. Lecoq's essay on "Fourbure," it has induced him to extract the following cases from his note-book:—

The first case is that of a thorough-bred foal, six weeks old, the property of a gentleman in Norfolk. It had been attacked about three days previously to his seeing it by that peculiar disease designated (where he was located) "*Sciatica*" by some, and by others "*Scoolden*." The knees, hocks, and pastern-joints, were considerably swollen, and the animal exhi-

bited a singular gait when made to walk. The swelling in this instance extended some way around the joints, and possessed a great deal more than its natural degree of heat: the animal also evinced pain when pressure was applied.

As the foal was a valuable one, I wished, before I suggested any treatment, to consult with another practitioner. We immediately agreed that it was this peculiar affection of the joints, and that debility was its principal or only cause. As the bowels were neither too costive nor too relaxed, no medicine was administered, but the treatment pursued was simply keeping the colt in a warm yard, to which was attached a hovel for its reception at night. The mare, however, was plentifully supplied with nutritious food, and in one month the joints assumed their proper size and form.

In May 1838, I was asked by a veterinary surgeon to see two similar cases: they were cart-foals of about the same age. The symptoms of one corresponded with those in the preceding case, with the exception of the hocks being more swollen, and the enlargement more confined to those joints, and the animal's condition not so good. The fæces were rather hard and feculent. I therefore administered a dose of *ol. lini*, and the bowels gently responded. No other treatment was adopted. The mare was placed on a more nutritious diet, and the foal perfectly recovered.

The other foal, in addition to these symptoms, had a thin glutinous discharge from the eyes and nostrils, and its coat was staring. From the outset the bowels were in a very relaxed state. On this account, *tinct. opii zij* was given, with infusion of linseed, but without any beneficial effect; and the foal died in about four days, considerably emaciated. I am sorry to say I had not an opportunity of seeing the parts after death. To these observations I would only add, that, it being customary to work cart-mares within a few days of parturition, they were both rather low in condition.

Mr. Rolfe.—As, in common with Mr. Sayer, some instances of this peculiar disease in the joints of foals have fallen under my notice, perhaps the following cases may not prove uninteresting:—

The first was that of a foal three weeks old. It first appeared lame from a soft swelling in the knee joint, very hot and painful. A few days afterwards the lameness appeared in one hind extremity, and evidently from a similar inflammation in the stifle joint. A short time subsequently almost every joint of the extremities was more or less inflamed. The animal suffered dreadfully. Not being able to stand, it was held up to suck, which it did very heartily, but after lingering for a week or two it died.

I examined every diseased joint, and found them highly inflamed; the cartilage, in some places, was absorbed, and the bones roughened, almost amounting to caries.

My treatment was, fever-medicine, and the application of cooling lotions to the joints. This foal had evidently taken cold from being turned out of a warm stable into a meadow when the weather was cold and rainy.

Two other cases occurred at the same time and place. When I was called in the foals were truly in a distressed state, neither of them being able to stand more than a few minutes at a time to suck. The joints of both had suppurated, and were discharging synovia, with large openings in the hock joints and stifle. They both died, after lingering several weeks.

Sulphate of quinine was given to these patients, but otherwise the treatment was the same as in the other cases.

These two animals, I am sorry to say, were not examined after death.

Now come some successful cases. A strong foal was taken ill, at Winkfield Castle, with similar swellings in the stifle joints and one hock joint, accompanied by very acute fever and pain.

Treatment.—I bled—placed a rowel in the chest, and one in each thigh, and gave an aperient, with fever-medicine twice in the day—puly. antimonal. ʒss, camphor. ʒj, et potassæ nitrat. ʒij. Cooling lotion to the joints.

This treatment was continued for about ten days, when the swelling of the joints and pain had considerably abated, and the foal recovered; but some enlargement of the joints continued during several weeks.

When this colt was three or four years old it died of a ruptured stomach, and I had a *post-mortem* examination of it. The whole of the mesenteric glands were larger than natural, and discoloured, and considerable thickness existed at the commencement of the thoracic duct, resembling a scirrhous tumor. Several vertebrae in the lumbar region were enlarged, and also the bones of the joints that were affected when he was a foal. The disease of the mesenteric glands, and the state of the bones of the joints, led me to think that the malady had some resemblance to scrofula in the human subject. It had never done perfectly well.

Last year I had a similar case, that recovered under similar treatment; viz. venesection, setons or rowels, and fever-medicine, &c. A foal, however, from the same mare, died of the disease this year. I was not called in until the foal was evidently sinking. The joints of this patient did not suppurate, but were so swollen and painful, that the poor creature seemed to die from irritation. Unfortunately, I had no opportunity of seeing the *post-mortem* appearances.

These two cases happening from the same mare, favours the idea that the disease was taken from the dam—that it is *hereditary*.

I will mention one case more:—A foal, when I first saw it, was lame in the off hind fetlock, which was so swollen, tender, and painful, that I thought there must be some fracture, either of the sessamoid bones or large pastern. It could not stand more than a few minutes at a time, and then could not rest even the least weight upon the limb. I applied a linen bandage around the joint, which was constantly kept wet with the “*lotio refrigerans*,” recommended in Mr. Morton’s excellent *Manual of Veterinary Pharmacy*.

I called two days afterwards, and, to my surprise, found the foal lammer in the near hind leg than in the off, on which it began to stand. I examined the near leg, and found the fetlock joint very much enlarged, and exceedingly tender and painful; the stifle joint was also very much inflamed. The poor animal was suffering most acutely. The mouth was hot and dry, the respiration rapid and exceedingly difficult, and the beating of the heart very quick and loud. I thought my case was altogether an hopeless one, and began to blame myself for mistaking the nature of it. I had recourse first to venesection, which afforded much relief. I then gave Cape aloes ʒiiss, with the fever-medicine, night and morning. I next inserted rowels in the chest, and one in each thigh, and applied lotions as before. This treatment being continued for some time, the patient gradually recovered.

The joints, in this case, did not suppurate. Their enlargement gradually diminished, but the swelling has not entirely disappeared, there being still a thickening remaining like an ossific deposit, but no lameness.

Where in any case the joints have suppurated, the foals have invariably died. This foal was four months old when taken ill, and the stronger and older they are, the more likely they are to recover.

As to the cause of the disease, I am at a loss to explain it. Sometimes I have thought that it has proceeded from cold; but in other cases this could not have operated, the weather being fine, warm, and dry. Some have said that the milk from the mare is the cause; but in the case just related, the foal was taken from the mare a month before any symptoms of disease ap-

peared. Whether it is really hereditary or not I shall not take upon myself to determine. I leave this in abler hands.

The *post-mortem* examinations only enable me to speak as to the general disease of the joints, synovial membranes, and abnormal state of the cartilage and bones. The hock joints and stifles are more frequently affected than any other. It seems to me that the synovial membranes are inflamed, and an increased deposit of synovia in the joints is the consequence, as they always appear soft and tender at first, and, when in the hock joint, resemble a large bog spavin.

I have never given this disease any particular name, but generally designate it 'Inflammation of the Joints in Foals.' I believe the affection to be wholly confined to the joints. By some, it is termed the Joint-evil. It most frequently comes on suddenly, and without any apparent cause. Sometimes it assumes an acute form, and is accompanied by a great deal of fever and constitutional derangement; at other times it is of a chronic nature, with but little febrile action or derangement in the system. In the chronic cases I have not taken the foals out of the meadows only during the night. In the acute cases they should be entirely kept in, and the mare not allowed all the green food she will eat, as the foals cannot keep on their legs sufficiently long to relieve the mare's udder, neither have they a desire to suck so much. In the former cases they will suck as well as ever, and, if only slightly lame, will follow the mare about the meadow; but if very lame it will be better to keep them shut up.

In the chronic cases, the disease is more confined to one joint, and is of a milder nature. In the acute cases, the disease shifts from one joint to another, or the different joints are more or less affected. It occurs in foals from five or six days to five or six months old, and I think I have seen one or two cases in old horses resembling it.

I never saw the disease in pigs, calves, or sheep, although they are subject to a peculiar malady which is similar to it, more particularly with regard to the symptoms.

I do not think that the locality has much to do with the cause, as I have seen it both in upland and lowlands; but I think the greater number has been in the lowlands. When it occurs in low marshy meadows, it will be better to remove the dam to a higher pasture; it will also be advisable to give her some mild aperient medicine. I have been most successful in those cases in which my treatment has been prompt and energetic in the first stage of the disease; but when pus is formed in the joints, and they seem ready to burst, it is generally a hopeless affair. There is never pure synovia discharged from the joints in these cases, but it is mixed with pus, or a thin sanguineous discharge, and very copious.

I confess I am an advocate for blood-letting, according to the size and strength of the patient. I also think highly of setons or rowels inserted near the affected parts, but not upon them. Aperient with fever-medicine may be exhibited, and enemas if necessary. The *lotio refrigerans* is also excellent as an external application.

In *THE VETERINARIAN* of 1832, p. 436, the disease is clearly stated; but I differ with the writer as to the joints in a few days becoming as perfect as before. I never saw a case of this kind. I beg to remark, that in very young foals I never give aloes; *oleum ricini* is the best and safest laxative for them.

There is a disease in cattle commonly termed the Joint Garget, which resembles this disease in foals; but it is, in my opinion, as different as scrofula is from rheumatism.

The President said, that he should be doing an act of injustice both to M. Lecoq, and also to the gentleman who had obliged the Association by a translation of the paper forwarded to them, if he did not offer to each and to both his thanks for the communication.

His own experience of the disease under consideration, coupled with the discussion they had that evening heard, convinced him that it was one which prevailed in this country. He, however, had not had an opportunity of investigating many cases, but in his early days he had seen a few. He was not at that time able to estimate the extent of the effects of the malady.

One of those cases had been an animal belonging to his father, and the patient recovered. The instances which had been mentioned by Messrs. Sayer and Rolfe, he should presume, presented the same characteristics. It would appear that the disease attacked the young animals at an early period after birth. In his opinion, it was one referrible to debility, arising from the poorness of the living of the parent. On the nature of the food on which the mother was fed, undoubtedly would depend very greatly the character and quality of her blood, thereby influencing, in no small degree, the lactescent secretion which she was able to contribute for the subsistence of her offspring. He was himself, however, somewhat inclined to regard the affection as being of a scrofulous nature; and it could not be denied that, if there were a scrofulous tendency in the parent, there was a great probability that the young one would inherit the affection. As to the question, whether this disease was attributable to plethora or debility, he had already said that he considered it of a scrofulous character; and he would further remark, that while he thought it to be an hereditary disease, or one imbibed from the parent, yet this must be viewed only as the predisposing cause, the disease itself being developed by the debilitating effects of low diet upon the parent.

He thought the observations that had been made by those who had spoken on this subject extremely valuable as to the propriety of paying particular attention to the food given to the mother. Mr. Hepper, it appeared, had adopted that course, and it was quite clear that a better plan could not be followed; because, by carefully dieting her, he had been paying the best possible attention he could to the welfare of the foal. That such was the fact must be evident to every one; since the foal, at that period of life, derived the greater part of its sustenance from the parent. Under such circumstances it was fair to infer that, when this disease shewed itself, the food at the time given to the parent was a leading cause of it. If, then, a case of this

kind was brought to him, he should say that the best course he could adopt would be, to remove the mother from the diet she had been living upon previously, and allow her more nutritious food, thereby producing a beneficial alteration in the character of her blood. While he did this to the parent he should not neglect the foal—considering that mild aperients and refrigerant lotions to the affected parts would be valuable adjuncts.

On the subject of puncturing the joint with a view to effect a cure, that was a course which he strongly deprecated; since, by it, extensive sloughing might be set up, and death ensue.

DECEMBER 22, 1840.

The PRESIDENT in the Chair.

Mr. BALLS laid upon the table the leg of a horse in which disease had made sad ravages. Sloughing of the skin of the heel to a considerable extent had taken place, and the suppurative inflammation had attacked all the sensitive parts of the foot, so that the horny covering was easily removed. In the first instance it appeared to have been a simple case of grease; but it had been injudiciously treated by caustics and other stimulants. The animal died from irritative fever, after much suffering.

The following communication addressed to the Secretary was read:—

Pershore, Nov. 20, 1840.

My dear Sir,—I have great pleasure in fulfilling my promise, by sending the cases of poisoning that occurred in my practice during last month to the Veterinary Medical Association. It is greatly to be hoped that these, with others, will throw some light on that neglected part of veterinary science—Toxicology. Should the communication of these cases have the slightest tendency to advance that branch of veterinary science, I shall be truly delighted.

I am, &c.

J. TOMBS.

SEVEN CASES OF POISONING BY ARSENIC.

Oct. 21st, 1840.—I was summoned in great haste to attend, at Mr. Bullock's, Besford, near this town, a grey horse, six years old. He was taken very ill in the team at Evesham, at

1 P.M. Mr. Bullock, thinking he was labouring under an attack of colic, sent him home, a distance of seven miles, where he arrived at about 4 P.M., and I saw him at seven o'clock in the evening. He was in dreadful agony. He got partly up, and tumbled down again, groaned piteously, dashed his head violently against the ground, struggled tremendously, and died in great agony ten minutes after I first saw him. He had been bled, and had two doses of gripe mixture given him. On inquiry, in order to ascertain the cause of the disease, I found that, the night before, the animal with the others was racked up with new bean straw, which appeared to me to be the probable cause of death. During my short stay, a grey mare, seven years old, in foal, was taken unwell: she lay down, but did not suffer much pain; the pulse was a little quickened, and her evacuations were extremely soft and offensive. I bled her, and exhibited an oleaginous draught. On the morning of the 22d, she appeared so much better, that I ordered her to work. I now examined the carcass of the grey horse, and found the stomach enormously distended with ingesta. On emptying it, I discovered a minute quantity of bean-straw in it, but not sufficient to have been the cause of death. The mucous coat of the stomach was likewise inflamed, as were the intestines in patches.

Oct. 23d.—I was called up early this morning to see another grey mare, five years old, in the same stable. She presented unusually strange symptoms, which awakened strong suspicions in my mind respecting the other cases. I immediately re-examined the stomach and bowels of the grey horse, when I found the sensitive coat of the stomach was very much discoloured, and there was congestion of some of the bloodvessels of that tunic. There were also patches of inflammation of the vascular lining of the intestines. The cæcum was distended with hard faecal matter, and its villous lining inflamed. I immersed a portion of the contents of the stomach in a solution of cupri sulphas, which became green. This experiment rather strengthening my suspicions, but not being sufficiently conclusive, I sent the stomach and part of its contents to your worthy and indefatigable Secretary, Mr. Morton, to analyse.

The symptoms of this grey mare were—pulse 105, and oppressed—respiration laborious, deep, and accelerated—conjunctiva very red—mouth hot and dry—she hangs her head down in the manger, and is very sleepy. I treated her for stomach staggers, or, in other words, for an affection of the stomach and brain (presuming at the time that the symptoms shewn were caused either by the food, or some noxious ingredient). I bled largely, and administered aloes 5x in solution—threw up ene-

mata, and inserted setons, and had the epigastric region fomented. At 6 P.M. she was much the same; but not having voided any fæces, I gave a bottle of ol. ricini, and warm water frequently.

24th.—She was considerably worse—pulse 115, and weak—tunica conjunctiva bordering on blackness—breathing excessively laborious: she lies down her whole length, and is very costive. I ordered another bottle of ol. ricini, and gave gruel and enemas often; I also stimulated the abdomen, &c. In the evening she became very restless—lay down and rolled; and looked back and groaned. Pulse 120. As the bowels had not responded to the medicine, I exhibited another dose of ol. ricini: she however died some time during the night.

25th.—Mr. Rose, veterinary surgeon, of Worcester, and myself, made a post-mortem examination of the body, and found the stomach and cæcum perfectly crammed with ingesta (not any bean-straw, but ordinary food), the villous coats were discoloured and inflamed. The other intestines were inflamed in different parts. The stomach being so full of food after the administration of such large and repeated doses of liquids shewed that it must have been greatly paralysed from receiving poison, as nothing but common food was found in it. I sent the stomach and its contents, with part of the cæcum to Mr. Morton for analysis, stating to him that Mr. Rose and I were decidedly of opinion that some mineral poison had been employed.

Oct. 25th.—Yesterday two other mares were attacked in a similar way to the last; one four, and the other seven years old.

Symptoms.—Breathing quick; pulse upwards of 100; congestion of the bloodvessels of the conjunctiva; bowels constipated; great degree of coma, and tension of the epigastric region, with perfect anorexia.

Treatment.—Blood-letting, repeated doses of oil, with tepid water; enemas, and external stimulants. To-day they are getting rapidly worse. They lie down often, and groan. The pulse and respiration are very quick; a continual flow of saliva takes place from the mouth; the lips are swollen; abrasions exist on the tongue; the mouth is hot, and extremely sore. The throat is likewise sore, as they swallow the medicines with great difficulty. In the evening the symptoms were more violent; they still lay down and groaned, looked back towards the flanks, and rolled about; the tension of the region of the stomachs was very great, and the beating of the heart to be heard at a great distance; convulsive twitchings of the lips and general tremors were present. The heads were thrown up and down perpetually, indicative of a disturbed state of the brain: continual strainings from great irrita-

tion of the rectum ; but no fæces voided, the bowels being obstinately constipated. During the night death terminated their intense sufferings.

Appearances subsequent to death.—The stomachs were distended almost to bursting, and so were the cæca. The whole of the alimentary canal of one of the mares was highly inflamed, and that of the other was so in patches. The brain and dura and pia mater were highly injected. The lining membrane of the frontal, nasal, and maxillary sinuses was in a state of congestion ; increased vascularity of the investing membranes of the tongue, the buccal membrane, the lining membrane of the Eustachian cavities, the larynx and pharynx, and the pleura pulmonalis and costalis, also existed. The omentum was in a state of gangrene. The mucous coat of the recta was very much thickened, and of a black colour, which accounts for the painful tenesmus.

As Mr. Morton had declined making public his analysis, on account of his duties at the College (although he subsequently made me acquainted with the results of his investigation) the stomachs and their contents were sent to Mr. Bullock, brother to the proprietor of the horses, for analysis, he being an analytical chemist. On the 28th I received a private communication from Mr. Morton, stating that he had subjected the stomach and ingesta of the first case separately to analysis, and found arsenious acid in both. On the 29th I received another letter from him, wherein he affirmed that he had likewise found arsenious acid in the stomach of the second horse ; and had obtained, by means of Marsh's apparatus, five or six unequivocal metallic discs, which he had shewn to Mr. Bullock, who agreed with him that they were arsenicum.

The grey mare that I have previously mentioned became suddenly worse on the 26th. She lay down and got up again very often, but ate heartily. The pulse was quick and strong. She continued in this state until the 29th, when the pain became excessive. Before this I had succeeded in purging her well. The pulse now got up ; colicky pains came on ; the appetite ceased ; the lips were swollen ; an increased secretion of saliva shewed itself ; the mouth and throat were sore ; great restlessness was present, with violent strainings and relaxation of the sphincter ani, which allowed of a continual ingress and egress of air in the rectum. By Mr. Morton's recommendation, I now gave the peroxide of iron ; but too late, as that deleterious agent, arsenious acid, had committed its sad ravages on the system previous to the exhibition of the antidote. The placenta was ruptured from the powerful heavings to get rid of the irritation in

the rectum. It came away piecemeal, succeeded by intense pain and abortion. The grim tyrant wound up the affair during the night.

30th.—The appearances after death were very similar to those recorded in the other cases, with two exceptions, viz., the stomach and cæcum were not filled with ingesta, and a portion of the mucous membrane of the cæcum was evidently corroded. The whole of the stomach of this animal was sent to Mr. Bullock for analysis.

Oct. 24th.—An old black mare, and a five-year-old black horse were attacked precisely in the same manner as the others. The horse was subjected to treatment, but the mare was not. They died on the 29th.

I examined them after death, and found their stomachs and cæca comparatively empty; they merely contained a little soft pulpy matter. The appearances, generally, were the same as in the other cases. These stomachs and their contents were likewise sent to Mr. Bullock to be analysed. That of the black mare was an excellent one for the purpose, as she had had no medicine.

Immediately after I received Mr. Morton's first communication, I mentioned to the proprietor that my suspicions were confirmed respecting the horses having had mineral poison given to them; and I ascertained that, two or three days previous to the first horse falling sick, Mr. Bullock had used some arsenic in the barn, to purify some wheat before it was planted. He had also inadvertently left the packet in the barn, and when he received my intelligence, he examined the packet of arsenic, and missed two parcels, each containing four ounces. It is satisfactory to know that Mr. Bullock, his brother, found arsenic in all the stomachs that he analyzed; and a great quantity of arsenic in the dirt and refuse lying at the bottom of the mangers: thus proving, beyond the possibility of doubt, that the horses were poisoned by arsenic, given by some miscreant at present unknown. It is my decided opinion, that the baneful drug was mixed with the horses' chaff the day before the first horse died, (it was that day and the day before that the arsenic was left in the barn), as I have discovered, by questioning the carter, that they all ate eagerly when they first came into the stable for a short time; they then refused the chaff, and would not eat any more till the next morning.

I have made this sad event as public as possible, for two reasons; 1st, because many people thought that they died from the influenza, which was prevalent in this neighbourhood, but generally curable; and, secondly, to let grooms and carters know that the veterinary surgeon can ascertain, after death, what deleterious

rious drug has been administered, which probably may have some tendency to check the abominable practice of carters and others giving their masters' horses all sorts of trashy drugs, to give them, as they say, a good appetite, and cause a fine glossy coat.

I cannot conclude without expressing my thanks to Mr. Morton for the trouble he took in analyzing the stomachs; while there is credit due to him for the priority of intelligence in ascertaining the cause of death, especially as I did not receive from Mr. Bullock the result of his investigations until two days after Mr. Morton's communication.

The following history of a case, by Mr. JAMES MOON, shewing the effect of certain therapeutic agents, perhaps a little incautiously exhibited, or the action of which was more marked from a peculiar idiosyncrasy of the patient, was then read:—

Oct. 14th, 1840, 6 P.M.—According to the report of the owner, the mare was about four days since attacked with catarrh, and a slight sore throat, for which he administered, in the form of ball, digitalis ʒj, potass. ant. tart. ʒiiss, potass. nit. iij, daily, for three successive days, on the latter of which my preceptor, Mr. H. Taylor, was called in, when the following symptoms presented themselves. Pulse intermittent—in number 84, and scarcely perceptible at the submaxillary artery—respiration untr tranquil—paleness of the mucous tissues—discharge from the nostrils—a rattling cough—difficulty in deglutition—loss of appetite—nausea—increased secretion of saliva; and from the mouth is emitted an extremely offensive odour: the tongue is also coated with a ropy white secretion. The animal is frequently lying down (on either side) in which position she will remain quiet for about twenty minutes at a time. No fæces have been voided since yesterday afternoon. The ears are clammy, and the legs deathly cold. Let them both be well hand-rubbed, and the latter bandaged. Give aloes ʒij, hyd. chlor. gr. x, in ball, and offer her plain water to drink, with which she stands playing for half an hour, without ever attempting to swallow.

15th, 6 A.M.—During the night she has been lying down and rising up nearly every half hour, yet there is no appearance of any acute pain being present. The pulse has increased to 96, and is now regular—the respiration is more accelerated—the cough more frequent and painful—the mucous tissues injected, and of a yellowish red colour. The symptoms otherwise remain as reported yesterday. Take blood to the amount of twelve pounds; blister the throat and the whole course of the trachea; hand-rub the legs, and continue the use of the bandages. The bowels have not yet been acted upon.

10 P.M.—The pulse this evening is more accelerated, being 104, which may in some measure be accounted for by the action of the blister. About five o'clock she was observed to commence voiding her urine every ten minutes in small quantities, and which was of its natural colour. A few small scybalæ have been passed, which are much coated with mucus. The extremities continue cold. Let them be again hand-rubbed and bandaged.

16th, 6 A.M.—The pulse has risen to 115, and is perfectly regular—the respiration continues accelerated—the increased secretion of saliva is not so great, and the nausea has nearly disappeared—the tongue, however, remains coated. The cough is as frequent, but not so painful as it was—the extremities are yet cold, and the same disinclination for food is evinced. Let the throat be fomented with hot water. Treatment otherwise as before ordered.

10 P.M.—This evening the symptoms are still more unfavourable; the pulse has risen to 120, and is again intermittent; the respiration is more accelerated and laboured; the mucous tissues are also considerably injected, and the animal continues frequently to void her urine in small quantities. She also lies down and rises up as much as she did. The fæces have been voided several times during the day, but they still continue hard. Give croton seed gr. x, and hyd. chlor. gr. v, in ball. Let both sides be well blistered with ung. cantharid.

17th, 6 A.M.—The pulse this morning has fallen to 100, and is again regular; respiration more tranquil; cough less frequent; the injected state of the mucous tissues is yet present, and the smell emitted from the mouth is even more offensive than it has hitherto been, while there also remains considerable irritability of the bladder. The extremities are warm. Give tr. opii ʒiiss in a hornful of linseed tea.

10 P.M.—The pulse has risen to 120, and is again intermittent; the respiration is more laboured, and, in fact, the symptoms generally have become much more unfavourable. One fore and one hind leg are warm, while the other two are cold. Let the latter be hand-rubbed, and the bandages be continued in use.

18th, 6 A.M.—During the night the animal has drunk freely of gruel and linseed tea, which is the first time she has taken any thing since the 14th inst. The pulse continued to intermit until three o'clock this morning, when it again resumed its regularity: it is now in number 96; the respiration is less laboured; the cough is not so frequent, nor are the mucous tissues so much injected, while the yellowish tint has disappeared; but there is yet a discharge from the nostrils. Her urine has

now become of a very dark colour and is voided frequently, and in small quantities. The ears and extremities are warmer. Let the sides be fomented with hot water for half an hour.

7 P.M. — This evening the pulse is 102, and regular; the bowels have been gently acted upon; the ears and legs are again cold, and the symptoms otherwise remain as reported this morning. Let the legs be hand-rubbed, &c. About twelve o'clock her respiration again became laboured; her pulse rose to 120, and was fluttering. She then began to reel about the box, and, at two A.M., she died without a struggle.

Post-mortem examination. — On removing the ribs, as the animal lay on her right side, the left lung was found to be of a pallid hue, and its edges slightly emphysematous. The right lung, on the outer surface, shewed marks of adhesion in two places, and considerable congestion. The pericardium itself appeared healthy; but there was an increased secretion of the liquor pericardii, amounting to rather more than three pints. The heart, when exposed to view, presented, both on the exterior of the right auricle and ventricle, spots of ecchymosis, and its muscular fibres were relaxed. The left auricle and ventricle were healthy. The larynx and trachea shewed appearances of recent inflammation, although not to any very great extent. On laying open the cavity of the abdomen, that portion of the omentum covering the stomach was found to be highly injected, while the splenic portion was healthy. On making an incision around the greater curvature of the stomach, and exposing its inner surface, extensive disease was at once apparent; portions of which lined by the cuticular membrane, and also by the villous, accompany this description. I thought that they would shew the change that had taken place much better than I am able to describe it. The mucous coat of the intestines was thickened throughout, and bore in the cæcum and colon a great resemblance to the portion of the stomach lined by the same membrane. The liver was of a clay colour, and somewhat broken down in its texture. The kidneys were also in an abnormal state, being much softened; and in the pelvis of each there was a considerable quantity of muco-purulent matter. The inner surface of the bladder was likewise much inflamed. The brain presented no marks of diseased action.

The Secretary. — I have read these communications from Messrs. Tombs and Moon with much pleasure and profit. The subject of "poisons" I have long thought worthy of more attention than hitherto has been paid to it by veterinarians; and it was under this conviction that, at the commencement of the Association in 1836, I attempted the task—however feebly it was performed—of introducing an Essay on the more energetic Poisons of the

Horse ; and, emboldened by the kindness then received from my friends, I subsequently condensed the same in the form of a Chart, which I ventured to dedicate to the Members of the Association. These may be accepted as proofs of the sincerity of my conviction.

There, however, yet remains much to be ascertained respecting the effects of poisons on our patients ; and therefore contributions, such as I have read this evening, are extremely valuable. The lesions produced in the tissues now on the table, are beautifully illustrative of the different action which may be induced by poisonous agents. Rarely is seen such a marked effect as that caused by the potassio-tartrate of antimony on the cuticular coat of the stomach : it bears some resemblance to the surface of the coral formed by madrepores. The villous coat is also much inflamed and thickened—one of the characteristic effects of this mineral substance when acting as a poison. I am compelled to refer the eroded state of this tunic to the potassio tartrate of antimony, no other drug having been given to which such action can be attributed ; but then, I doubt not, the stomach, from the general inflammatory action going on in the system, was rendered peculiarly susceptible of its influence. I am not, however, now about to speak of the effects of this agent as a therapeutic. In the hands of the careful and observant practitioner I believe it to be one of value ; but it is too often abused, and especially by the empiric. Many instances, in proof of the truth of this position, have fallen under my notice. Do I then condemn its exhibition ? By no means. I had almost said, this is a cogent reason why I would employ it ; because, in proportion to its activity, so also is the good likely to be obtained from its judicious use.

A short time since, Mr. Silvester, of St. Albans, sent to me a portion of a ball for analization ; the improper administration of which, he feared, had been the cause of death in a horse. Upon analysis I found in it the agent now adverted to, with large quantities of nitrate of potassa, camphor, and soap. These were its essential constituents. Now all, or any, of these, carefully given, may prove beneficial ; but when grooms, and the uneducated in medicine, become the exhibitors, they are often productive of sad mischief. I beg leave to read an extract from Mr. Silvester's letter containing an account of the case :—

“ The symptoms that I observed were similar to two cases of gastritis that I have met with, and which I considered to be caused from a large dose of digitalis too frequently administered. I will briefly state them :—Profuse discharge of saliva ; the animal continually shifting his position, occasionally lying down,

but almost immediately rising again, looking round at his sides, and more frequently the near than the off—quick breathing—pulse feeble and very quick, scarcely to be felt at the jaw—extremities cold as death, with cold perspiration, and great anxiety of countenance; in fact, every symptom betraying the most intense suffering. I am sorry I could not make so minute a *post-mortem* examination as I wished, having to conduct it entirely myself, and being pressed for time in consequence of professional engagements. On opening *the chest* the lungs were found very much inflamed, with portions hepatized—the lining of the bronchi of nearly a black colour—the pleuræ, also, very much inflamed and thickened. The heart presented patches of inflammation on its external surface, and the pericardium contained about three pints of fluid.—*Abdomen*: The stomach was quite empty—the villous portion much inflamed, with patches of ulceration, varying in size from a sixpence to a crown piece, and easily separated from the muscular coat, but the cuticular part was healthy—the intestines, both large and small, were very much inflamed—the liver of a light clay colour, and easily broken down—the kidneys were normal—the bladder I did not examine. I have thus given you a hasty and, I fear, very imperfect sketch of the case.” Much circumspection should be exercised in apportioning the dose of tartarized antimony. I have, over and over again, confessed myself to be a friend to repeated small doses of medicines, rather than to the exhibition of very large doses; the effects of which will vary with the disease, age, temperament, &c., of our patients; producing in one violent action, while to another it may prove, if not salutary, at least perfectly innocuous.

As it respects arsenious acid, as a veterinary therapeutic, I think we can afford to dispense with it altogether, although I am aware it is a favourite with many of the old school. While I was corresponding with Mr. Tombs respecting his cases, suspicious cases occurred to two other veterinary surgeons, and, portions of the stomachs and their contents being sent to me, I was enabled to detect minute quantities of arsenious acid in them. This shews how prejudicial this agent sometimes proves; for it does not by any means follow that it is always given with an evil intention, and in the majority of the present instances I certainly believe it not to have been. It may have been administered as a curative means, but, more probably, from the rage for “quackery” among grooms and others, by whom various poisonous agents are often exhibited, their object being to get the horse into condition, and to give to his coat that sleekness so much admired by horse owners. Now we possess a decisive reagent for very few of the vegetable poisons; but for the mineral

ones we are more fortunate; and, perhaps, among this class of substances, no two are more generally employed for the purposes I have named than are arsenious acid and the potassio tartrate of antimony. The means to be employed to distinguish the one from the other becomes, then, an interesting inquiry: this is the object I have in view in now addressing you; for some important and recent investigations of Orfila appear to throw a new light upon this subject. I shall therefore draw largely from the published statements, offering you at the same time some suggestions of my own.

The first indication of poisoning by either agent is the lesion of the tissues with which it may come in contact. This will vary with the dose and mode of exhibition; consequently upon any appearance that may be presented to the eye, the veterinary surgeon cannot rely; he must come to chemical tests and reagents.

The quantity necessary to destroy life in his patients, as I have elsewhere said, being large, the niceties of chemical manipulation are uncalled for; yet some little tact is demanded of him. Referring you to the same source for other means of detection, I come to that on which it appears the greatest reliance is at present placed, namely, Marsh's apparatus. And my desire and aim by performing the experiments before you is, to impress upon your minds the distinctive differences.

Both arsenicum and antimony are soluble in hydrogen, forming arseniuretted and antimoniuiretted hydrogen, which on being inflamed deposit the metals on any cold substance brought into immediate contact with the flame. This is the principle of Marsh's apparatus. From the veterinary surgeon having larger quantities to operate upon than the human practitioner has, I have been induced to adopt for veterinary purposes a modification of the hydrogen gas, or Dobxneider's lamp, the jet being tapering and vertical, instead of the usual form. This is one before you, and it is capable of holding a pint and a half of liquid. The zinc, you perceive, rests upon a projection in the bottom of the jar, or it may be suspended in a small platinum-wire basket. The former I prefer, as being less troublesome. Now it is extremely necessary before you proceed to ascertain if arsenic or antimony exists, that you see the materials which you employ are pure. The zinc of commerce sometimes abounds with arsenicum, as is proved by these metallic discs or films obtained on a trial of four samples of this metal; and occasionally the sulphuric acid is contaminated in like manner. You must then, at the onset, ascertain by trial the purity of both, which is readily done by generating some hydrogen in the bottle, inflaming it,

and bringing a piece of glass, or a white porcelain capsule, in contact with the flame. If after allowing it to play for some time only water is condensed, you may be satisfied that your materials are pure. You then add your suspected solution with the acid, and proceed to collect the arseniuretted or antimoniuiretted hydrogen, which being set on fire, the film is to be received on a piece of glass or porcelain.

But the metallic film formed by antimony and that formed by arsenic, to the eye differ only a little from each other. How then are they to be with certainty distinguished from each other? 1st, Orfila states that they are both soluble in nitric acid, the arsenicum becoming arsenic acid, if the dose of oxygen be sufficiently large, and this, on the addition of nitrate of silver to it, forms an arseniate of silver of a brick-red colour; so that all we have to do is to dissolve the metallic film in nitric acid, then dry it, and add a solution of the nitrate of silver to it; and if this change of colour takes place, we may be assured it is arsenicum. To determine the existence of antimony, let the metallic film, in like manner, be dissolved in nitric acid, evaporate to dryness, and then dissolve in hydrochloric acid, when a current of sulphuretted hydrogen gas being passed up through it, will form the red sulphuret of antimony—kermes; or, a few drops of the hydro-sulphate of ammonia in solution being added, will cause the like precipitate, and simplify the process. 2dly, The arsenical spot is distinguished from the antimonial by its volatility at the flame point of pure hydrogen. And, besides these, there is, 3dly, another distinction;—arsenious and arsenic acids are both soluble in boiling water, and antimonious acid is not.

M. Lassaigue, of the Veterinary School at Alfort, proposes to pass the gas as it escapes through a solution of pure nitrate of silver, by which it is decomposed, and the silver precipitated in black flakes. There is now produced arsenious acid mixed with the excess of nitrate of silver. This is to be decomposed by chloriodic acid, and by filtration the chloride and metallic silver are to be separated. The solution being heated, the nitric acid which it contains reacts upon the arsenious acid, and converts it into arsenic acid; the properties of which are ascertained by the ordinary means.

Some differences exist in the appearance of the flame of arseniuretted and antimoniuiretted gases as they issue from the jet, which may as well be pointed out, as they will prove collateral evidences. It ought also to be observed, that the flame should not be large,—not more than the one-sixth of an inch in length,—and the body of the flame should be allowed to play on the capsule, or the metal may be diffused into the atmosphere, and lost.

I will now proceed to perform the experiments in your presence. The apparatus being arranged, and a solution of arsenic added to the zinc and diluted sulphuric acid, observe how quickly the generation of ARSENIURETTED HYDROGEN takes place. I set it on fire as it issues from the jet, and *its flame*, you see, is of a pale blue colour, tipped with a pinkish green. I cause it to impinge upon this porcelain disc, and the deposited *film*, you perceive, is highly metallic and iridescent, and surrounded with a whitish opaque deposit.

If we now obtain ANTIMONIURETTED HYDROGEN by the same means, *its flame* is white, tipped with an olive green; and *its film* metallic and grey, surrounded with a dark brown deposit.

I now apply the re-agents before spoken off; and observe how different are the results! I trust, after this exhibition, there will be no longer any difficulty resting on your minds as it respects these poisons, *for I believe the time to be come when veterinary surgeons should be able to conduct their own analyses*. They may call in the assistance of a brother member of their own profession, or that of the sister science, who will not, I am sure, withhold it; *but the weight of the investigation should rest upon themselves*.

TUESDAY, JANUARY 5, 1841.

The Association met this evening pursuant to adjournment over the Christmas holidays:

Mr. FRYER, V.P., in the Chair.

The Secretary exhibited a new mode of detecting minute quantities of arsenic by an apparatus, a drawing of which is given on the next page; and said, "Since I last introduced to your notice Marsh's method for the detection of arsenious acid, my attention has been directed to a means of obviating one of the objections that has been raised to his plan, the principle of which you are acquainted with. It rests upon the fact that hydrogen in a nascent state has the property of dissolving some of the metals, and particularly antimony and arsenicum. I naturally thought that, if by any other means we obtained nascent hydrogen rather than by the action of zinc upon diluted sulphuric acid, we should effect our desired end; and I turned to galvanism, in which we have a power capable of causing the decompo-

sition of most compound bodies, and, consequently, of effecting their analyses. By it nearly all the metals are reduced, and water is made quickly to yield up its constituents. These two principles, in fact, embrace the objects I had in view.



It was however necessary, before I could proceed to demonstrate the correctness of my reasoning, to form an apparatus, and the one I have invented is now before you. The idea was taken from the water-decomposing apparatus usually employed. It consists of an outer glass vessel capable of containing any quantity of fluid that may be deemed desirable. This holds nearly a pint; for we can, as I have before said, operate upon larger quantities than the human surgeon. Within it are two tubes, having pieces of platinum foil passing up into them, and so arranged that they may be readily connected with the electrodes of a galvanic battery. The upper parts of these tubes are mounted with stopcocks and jets. The vessel and tubes being filled with the suspected solution, a connexion is to be made in the usual way with a galvanic battery of a few plates, when, if arsenicum be present, it will be evolved at the negative electrode in union with the

hydrogen, forming arseniuretted hydrogen gas; which rising up into the tube, will displace the water. As soon as the tube is full, the stop-cock may be opened, and the gas inflamed as it issues from the jet; when by bringing a porcelain capsule over the flame—or that which I prefer, a watch-glass, because you can cause the flame to impinge upon it better, it being a transparent body—a metallic film will be deposited on it; and that this is arsenicum is to be proved by the means advocated by Mons. Orfila, and which have been before adverted to by me.

I have here a grain of arsenious acid dissolved in a pint of water, and we will put the apparatus in action. First, I acidify the solution to render it a better conductor of electricity, by adding two or three drachms of pure sulphuric acid to it. It is necessary that the acid be pure, which may be known by previously testing it. The electrodes being now placed in the mercurial cups, you perceive decomposition is rapidly taking place. The hydrogen tube is now filled, and I inflame the gas at the jet, and receive on the watch-glass the desired indication of the presence of arsenic, viz. the metallic film.

Now how many of these metallic films may be obtained I know not, for I conceive that with every particle of water decomposed there will be a corresponding particle of arsenicum eliminated, as the arsenious acid has been diffused throughout the whole of the fluid; but in this I may be in error.

I have, however, carried the process of dilution much further than this, having doubled and quadrupled the quantity of the water; and even when one grain of arsenic has been dissolved in a gallon of water, or one part in above 76,000, I have obtained abundant proofs of the existence of the poison. I cannot but think that this is sufficiently delicate for the investigation of the veterinary surgeon, even if it should not be for the practitioner of human medicine.

When the quantity of arsenious acid is large, and the progress of decomposition slow, a discoloration of the solution will take place, and the hydrogen tube at its lower end become encoated with a beautiful film of metallic arsenic. And when the ordinary single tube apparatus is employed, and the mixed gases thus disengaged inflamed, a similar metallic deposit will line the interior of the tube.

I have not yet had an opportunity of ascertaining how organic fluids will conduct themselves in this apparatus; but I do not anticipate any insurmountable difficulties.

I believe the method to be new: if it should prove useful, I shall be gratified, and amply compensated for the little labour and expense I have been at.

Mr. Simonds next addressed the meeting :—

Mr. President,—Having seen in “*The Lancet*” for Nov. 14th of this year, some experiments conducted by *Orfila*, to prove that the kidneys, very speedily after the administration of arsenic, separated it from the system, and that its presence might be detected by subjecting the urine to chemical analysis, I instituted the following experiment.—To a cow condemned to be slaughtered, but apparently in perfect health, excepting a wound, the result of an abscess in her udder, was given about 9 p.m. Nov. 30, one scruple of arsenic mixed with mucilage q. s. to form a half pint draught.

Dec. 1st, twelve hours after.—The pulse was found to have risen to 100, its tone full, and irritable. No other indication of any alteration from a state of health was present. The appetite, rumination, &c. continued unimpaired. In the evening the dose was repeated. Two hours afterwards the pulse was increased to 120.

2d, 9 p.m.—The pulse had sunk to 95; countenance dejected; appetite diminished. During the night the alvine evacuations were more frequent and fluid, and also a little darker coloured than natural. No other alteration from a state of health was apparent. The dose was repeated in the evening.

3d.—The animal in nearly the same state as reported yesterday. The same quantity of arsenious acid was again given in the evening; three hours after which the pulse had risen to 105, and diarrhœa was commencing.

4th.—The bowels continued relaxed, but the appetite and rumination appear unaffected. The pulse has ranged throughout the day about 100. In the evening the dose of arsenious acid was augmented to 3ss.

5th.—No greater disturbance in the system than yesterday. The dose repeated.

6th.—The effects of the agent are not more visible than they had been. As it was fair to believe that by this time the system had become charged with the poison, and the urine having from time to time been collected, the experiment was discontinued.

On subjecting the collected urine to the test of nascent hydrogen, using *Marsh's* apparatus, as advocated by *Orfila*, I could not, after the most patient and minute examination, detect the smallest indication of the presence of arsenious acid, and I therefore inferred that none existed in it: but, in so important a matter, I did not wish to depend upon my own analysis, and, well knowing the kindness of my friend *Mr. Morton*, I forwarded to him some of the urine, that he might, as I was well convinced he would, undertake its examination. The result, however, was the same as that I had already arrived at. Under these circumstances *Mr. Morton* suggested that the animal should again be placed under the influence of arsenious acid, pushing it to an extent that would affect the system to a still greater degree than had yet been done. Accordingly, a few days afterwards, I administered a drachm of arsenious acid mixed as before, with mucilage q. s. ut fiat haustus. On the following day it was repeated, and from this time until the sixth succeeding day the dose was increased at the rate of 3ss per diem. We had now our poor patient suffering acutely from the poison. To relate the symptoms would only be a repetition of those previously stated, when the system in the former experiment had become deranged from the agent administered, except that all were increased in severity, such as the accelerated pulse, diarrhœa, &c. accompanied by total loathing of all kinds of food—suspension of rumination—dejected countenance—cold extremities, &c.

On the 9th day, finding the poor animal was rapidly sinking, I gave another dose to the same amount as the one immediately preceding, with the intention of destroying her by the poison. This was effected.

From time to time the urine and alvine dejections were collected, the latter of which were passed quite fluid, and gave out a most unpleasant odour. These were subjected to the same experiment as had previously been had recourse to, and yielded strong proofs of the presence of arsenic; but the metallic discs, if any were produced by the analysis of the urine, were so slight, that had I not known that the animal was destroyed by arsenious acid, I should not have suspected such to have been the case, nor have been inclined to attach any importance to them.

Mr. Morton having by this time perfected an instrument for the detection of arsenious acid in organic and other fluids, by which the zinc used in Marsh's apparatus is entirely got rid of, and which is one of the objections raised against its employment—it having been found that this metal often contains arsenic, and hence, when used, it would lessen the reliance that ought to be placed on the experiments—I was induced again to trouble him.

I should be unjust to Mr. Morton were I not to avail myself of this opportunity of tendering to him my best thanks for this important addition to toxicological science; for I am fully convinced that by this discovery that gentleman has perpetuated his name in the scientific world. To this valuable apparatus he, Mr. M., kindly subjected the urine, when the indications of the poison were, at best, but uncertain.

I cannot close this account without briefly stating it as my opinion that, from these experiments the conclusions of Orfila respecting the separation of arsenic from the system by the kidneys, however correct they may be when applied to the human subject, and to the animal on which that talented chemist experimented, namely, the dog, are found not to be equally correct in the cow: at least, this is the inference I am compelled to draw from experiments, the particulars of which I have endeavoured to make you acquainted with.

The following communication from Mr. George Bainbridge, V.S., of Saffron Walden, was then read:—

Dear Sir,—Having within the last week had an opportunity of making a post-mortem examination of two fat beasts, one of which died suddenly, and the other I ordered to be slaughtered, and believing that the death of both of them had reference remotely to the thrush or epidemic that has so long prevailed, I trust I shall not be considered intruding by forwarding an account of appearances as they were presented, to the Association. The first occurred on Sunday last, when I was requested to examine the carcass of a beast that had died on the Saturday night or Sunday morning. This animal, with eleven others, had the thrush in the mouth in September last, and, since that time, has been stalled up and fed on barley meal, cut hay, and oil cake, and appeared to do as the rest, until Saturday morning, when he refused his food, and was, as the man described him, all of a shake, and purging a good deal. But this passed off, and at noon he again fed, and at six o'clock in the evening he appeared as well as usual: but was found dead in his stall on the following morning.

When I saw him he was flayed and hung up: his carcass appeared like a mass of gangrene; the head and a small part near the back excepted. The brain and spinal marrow were apparently healthy, as were the trachea and lungs. The heart was soft and gangrenous; the liver and both kidneys were in the same state; the spleen was twice its natural size, and resembled a mass of coagulated blood; but the peritoneal membrane covering it was

neither so soft nor so easily torn as that covering the liver. The stomachs externally appeared to be in a normal state; but, upon opening the first and second, the inner coat on being touched peeled off, and shewed traces of intense inflammation. They contained a fair portion of food, as did the third, which had no particular appearance. There was not so much inflammation on this, probably owing to its structure. The fourth stomach and all the intestines were as black as coal, and smelled most offensively.

On Tuesday evening I was again requested to visit the yard, as the beast that stood next to the one that died seemed unwell. The symptoms present were,—he refused his food, and had scoured a little; the pulse was steady; horns, ears, and extremities warm; breathing natural; in fact, I was inclined to think there was but little the matter, and I prescribed accordingly. I saw the animal again about three o'clock in the afternoon of Wednesday. He had then fed but little, yet his general appearance did not indicate the existence of any acute disease; but his pulse had risen, being 70, and was sharp and strong. I ordered him to be turned into the yard for my better examination, when he voided some dung of a healthy consistence, but mixed with blood. Having the other case in remembrance, and fearing the result of this, I ordered him to be killed, and he was slaughtered at night. The following was the appearance of the carcass on the next morning: the flesh looked good, not differing from prime ox beef, only it was not quite so fat. The brain and spinal marrow were healthy; the heart and lungs also healthy, excepting a small abscess on the edge of one lobe; the spleen natural, and not larger than ordinary; the stomachs externally appeared sound, but the third or manyplus was very large and much distended with food, but of the usual kind. Upon opening the first and second stomachs, the inner coat peeled off as soon as touched, but there was not so much inflammation as in the last case. There were slight traces of increased vascular action on the leaves of the manyplus. The mucous coat of the fourth stomach was very highly inflamed, and the same tunic, throughout the intestines, was in the same state, occurring in patches. I should have observed, that the mouth and tongue of both beasts were healthy, and therefore it became a question whether the epidemic had any thing to do with the attack of which they died. I confess I have my doubts.

The cause of such acute inflammation in the first case, and its running into a state of gangrene in so short a time, I am wholly unable to account for; but, perhaps, if this is laid before the members of the profession through the published Abstract of your proceedings, some useful hints may be obtained.

From the state of the stomach a suspicion might steal over the mind that some poisonous agent had been administered, or something noxious taken in with the food. Nothing, however, definite on this head can be ascertained; and the fact that no other beast has since been similarly affected causes me to hesitate in advancing such an opinion. Should another beast be attacked, I will more minutely note the symptoms, &c. and communicate them to you.

I am, dear Sir, &c.

AN ESSAY ON PUERPERAL FEVER, by Mr. JAMES DAWBER, V.S., of Basnett Street, Liverpool, was next read.

Mr. President and Gentlemen,—If a few observations on the disease commonly called “Puerperal Fever” in cows, as well as the description of several cases that have fallen under my notice since I had the honour of presenting and defending an Essay on this malady during my pupillage at the College, be not a useless occupation of your time, I shall feel great pleasure in offering them to the notice of the Association.

I was much pleased with the communication from Mr. Robinson, of Tamworth, but more so with the discussion which followed, as reported in the proceedings of the Association for Nov. 1840; for I now think we are about to arrive at a knowledge of the true character of this disease, which I feel confident has not yet been accurately described by any writer on the subject.

I know not of any affection respecting the nature of which gentlemen who have given us their opinions are so much at variance with each other as this. No two of them seem to think alike. Nor do I know of any subject on which the *stars of the profession* have so materially changed their views respecting it within the last few years, as this. Mr. Friend, V.S., of Walsall (to whom the honour is due for first stating that the disease is one of the nervous system), is the only one that I know who has adhered to his original opinion.

Mr. Youatt, in his valuable work on “Cattle,” stated “that the malady primarily existed in inflammation of the womb, the system soon sympathizing, and eventually it becoming a general inflammatory fever.” During the discussion which followed the forementioned Essay, he candidly acknowledged that his opinions respecting the character of this disease had undergone some change since the publication of this work. The affection, he says, “is palsy of the organs supplied by the dorsal, and lumbar, and sacral nerves, both animal and organic.”

Professor Sewell, when delivering his lecture in April 1837, on inflammation of the uterus of the mare, introduced this disease, and said, “the uterus of the cow is liable to take on inflammation after parturition, constituting the disease called puerperal fever. The symptoms which attend it are febrile action, the cow often down, and unable to rise, and the pulse sometimes increased. Much diversity of opinion prevails regarding the treatment of it. Farriers are in the habit of giving stimulants, but I should treat it as an inflammatory disease, for post-mortem appearances shew a diffused inflammation and copious suppuration

of the organ." From the report as given in *THE VETERINARIAN* for November, he appears now to be undecided in his opinion, and is somewhat cautious in giving an opinion at all; advancing as his reason for being so, that he has seen but few cases of the disease, consequently he will leave it in the hands of those who have had more experience in cattle practice than he has.

Many opinions have been offered by others, but it would be quite unnecessary for me to introduce them here. I have merely mentioned the opinions of those gentlemen in particular, to shew, that those to whom we all look up for correct theories, have been in the same dilemma as others who have publicly stated their opinions; all, in short, seem to have formed peculiar ideas of their own as to the character and best mode of treating this disease.

I hope I may not be misunderstood. I have no wish to cavil with the opinions of others, far from it: "to err is human." My own views might have undergone a change—although I confess they have not—and then it would have been but honest in me to have stated it, which I would not have hesitated to do.

The object I have now in view is to endeavour to prove that at least two forms of disease present themselves in the cow shortly after parturition, both of which, up to the present period, have been comprehended under one name, and this name not sufficiently expressive of either. To substantiate this position, it will be necessary for me to offer some illustrative cases, taking them as they occurred from my note book; after which, I shall offer a few strictures on the term puerperal fever; for I consider it an erroneous appellative, and one calculated to lead the inexperienced to adopt an injudicious and oftentimes injurious mode of treatment; at the same time I shall introduce one that I think more applicable. First, the description of the cases which have fallen to my lot to treat, with the conclusions I have drawn from them; during which I shall make a few observations on the remarks that fell from several members of the Association, when considering Mr. Robinson's letter.

CASE I.—I was requested by a farmer to make a post-mortem examination of a cow that had died very suddenly. I was informed by him, that the cow was first noticed to be unwell at five o'clock p.m. She appeared wild and staggered, shortly after which she fell down, and was unable to rise ever after. The secretion of milk was suspended as well as the evacuations. A farrier was sent for, who arrived about six o'clock p.m. He did not say what was the matter with the cow, but took about five quarts of blood from her, and ordered a pint of castor oil to be given to her; he then left her—to take her chance, I suppose—without giving any particular orders about the farther treatment of the animal. After this she continued to get worse, and died about three o'clock on the morning following. Some further particulars of the case were mentioned to me by the farmer, after which I had not the slightest doubt but the cow had died of what I am compelled to call

puerperal fever. I made my examination about eight o'clock, being five hours after death. I first inspected the viscera of the abdomen. The intestines themselves shewed no trace of disease; their contents were in a soft state, with the exception of portions of the ingesta in contact with the mucous coat of the intestine, which were becoming a little hardened, black, and covered with mucus. The stomachs were perfectly healthy; the third stomach contained vegetable matter of the usual kind, neither hard nor dry: the bladder was empty; the uterus was in the state so well described by your worthy President, Mr. Spooner, during the discussion already adverted to. The gall-bladder contained at least one quart of bile; the brain, its membranes, with the spinal sheath, appeared in a state of congestion. The lungs also were highly congested, so much so, that a portion of them would sink rapidly in water; but a most singular lesion existed in this case, and one which I never before saw or heard mention made of—namely, the pleura covering the right lung was lacerated. It seemed as if it had been burst by the immense mass of blood the lungs had contained, and from this opening about two pounds of blood had escaped, which was partially coagulated in the cavity of the thorax.

This is the only case of death that has as yet occurred under my notice. It is true I have had but little cattle practice since I left the College, but previous to my going there I had much, and I made many post-mortem examinations of cows that had died of this disease, and always found the parts to be in a state similar to the above described (with the exception of the ruptured pleura), no traces of inflammation existing in any other viscus. I am of opinion that the disease—a real case of which will be described next—does not originate in inflammation of the womb. All that I have examined have been in the natural state, so well described by your President, as existing in the uterus sent by Mr. Robinson; with only one exception, which I shall hereafter mention.

The peculiar state of the contents of the third stomach I feel confident is not a cause, but an effect of the disease. If it were otherwise, the derangement would produce consequences of another kind, which could not escape the eye of the owner, and this too, most probably, even before the cow calved. In short, the effect arises, as Mr. Simonds very truly observed, from a derangement of the nervous system, and the peculiar state of the contents of the stomach—"the food obeying the laws of chemistry."

Professor Sewell stated, that one gentleman had informed him that he considered the disease to arise frequently from over-distention of the bladder; for that after a catheter had been introduced, and the urine drawn off, the cow had stood up and done well. I should not like to attribute the disease to such a cause as this. I am inclined to believe that the cow must have almost recovered from the disease when this operation was had recourse to; such is an effect and not a cause, in my opinion. How many bladders are found distended after death? I have never

found any. I have very frequently during life pressed upon the bladder per rectum, thus causing an expulsion of the urine; but I cannot say that I ever cured a case by so doing.

CASE II.—Was an aged cow belonging to a miller in the neighbourhood of Wigan. She was in very high condition. I was called to her about six o'clock p.m. The cow had calved in the morning. I found her on her legs, the respiration not at all disturbed—the pulse about 50 and regular—the whole surface of the body naturally warm—the eyes appeared rather glassy—the secretion of milk was stayed—the evacuations were regular, but she did not feed at all. I gave her a dose of cathartic medicine, and requested the owner not to leave her during the night. She continued in this way until six o'clock the next morning, when she appeared much worse, began to stagger, and in an hour after this she fell down; shortly after which I arrived to see her. I found her quite insensible, with her head turned upon her side; pulse not above 40—breathing with difficulty, and not able to support the weight of her head. Light had no effect on the eye—sensation as well as motion was lost—the body and extremities were cold—the rumen appeared distended with gas—and the evacuations were suspended, as well as the secretion of the milk, &c.

I first gave a diffusible stimulant; shortly after which I took from her about four pounds of blood, ordered more purgative medicine and an enema every three hours, to which fifteen drops of croton oil were added. I also recommended the surface of the body and the extremities to be well rubbed with a wisp or brush, and the animal to be occasionally turned over. It was obvious to all that saw her, that she gradually improved, until eleven o'clock, when she began to get worse. At one o'clock, I again gave a diffusible stimulant, and abstracted about four pounds more blood. After this she again appeared better. At three o'clock purgation commenced: I then ordered the enemas to be discontinued, and friction to be again applied to the body and legs. From this to eleven o'clock p.m. little or no change was perceptible; but during this time she occasionally voided her urine, and also feces; and the secretion of milk was partially restored. Early on the following morning I found her on her legs, looking out at the cow-house door. She was milked, and yielded about six quarts of milk. Tonic agents, with light and nutritious food were given her, by the aid of which she was speedily restored to health.

This was what I should consider to be a real case of what hitherto has been termed *puerperal fever*; but what I consider to be disease of the whole of the nervous system, produced by circumstances connected with the act of parturition.

CASE III.—Was an aged cow, the property of a widow in the same neighbourhood as the last case, and in tolerable condition. I was called to see her about twenty-four hours after she had calved: I found her lying in a natural position, supporting her head; she appeared feverish; did not feed; was perfectly warm all over; the secretion of milk was partially suspended; the bowels were not constipated, but she seemed to have no power whatever to rise when she was urged: motion as well as feeling was lost in the hind extremities, and partly so in the fore. I gave her a diffusible stimulant, afterwards a dose of cathartic medicine, and applied a very strong stimulant along the spine; ordering frictions to be employed to the whole surface of the body.

In about ten hours after this it was quite evident that feeling as well as

motion was returning ; and in less than ten hours after she got up, fed well, and yielded an increased quantity of milk. The same cow was attacked in the same manner after her next calf. The like remedies were resorted to with similar results ; and she is at this moment the best and most profitable cow the widow possesses.

CASE IV.—Was a case precisely like the last two. The cow was young, and in only tolerable condition. The same remedies were had recourse to, but not with the same results. In twenty-four hours after I was called all fever had ceased ; the evacuations became regular ; she yielded a larger quantity of milk than could be expected ; feeling was restored, but not motion ; in fact, she did not gain the use of her legs for fourteen days after, when she stood and did well.

I continued the use of the stimulants, and paid great attention to the state of the bowels, frequently turning the animal from side to side. I would observe, that she frequently sat on her hind quarters like a dog. She was in a loose box, and could in this way move about with facility. Before she quite regained her strength, she frequently supported her weight on her hocks and knees.

I should consider the two last cases to be disease of the simple motor nerves, and nerves of sensation destined to the same parts.

The process of parturition was not difficult in any of these three cases.

CASE V.—Was a case precisely the same as Case II. She was a French cow, in high condition, belonging to a person in this neighbourhood (Liverpool). The same means were had recourse to as in that case. She recovered from the attack, but died in the course of a few days, from superpurgation, which arose from the improper interference of the cow-man, who had administered a large quantity of jalap and other drugs, unknown to me.

CASE VI.—Was an aged French cow, in very high condition, belonging to H—E—, Esq., of this town. I was requested to attend her on the day after she calved. I found her down and unable to rise, evincing great pain, very restless, supporting the weight of her head. She frequently endeavoured to rise, which she in part effected, but as often fell back in the most excruciating pain ; her breathing was quickened, her pulse strong and full. The process of parturition in this case had not only been tardy but difficult ; the labii pudendi and vagina were highly inflamed, being almost black in colour. I did not for a moment think that I had here a case of puerperal fever (I am still obliged to use the term), although the cow was down and unable to stand, but inflammation of the *womb*, and I treated it accordingly, but without success. The plans I adopted were purely anti-phlogistic. She died in six hours after I was called.

I made a post-mortem examination, when the womb told plainly that it had been the cause of death, being much lacerated, and in a state approaching to *gangrene*.

Many cases like No. 2 and 5 have fallen to the care of an esteemed friend, who has followed my plan of treatment, and with very great success. I have seen many cases lost from improper treatment, and mostly from large bleedings.

CASE VII.—This is the last case I shall describe ; in short, it is the last case that has fallen under my notice. My patient was a French cow, belonging to H—E—, Esq., of this town, in high condition. She calved on the afternoon of the 16th of December, and was left at night apparently in good health.

At four o'clock on the following morning, the cow-man found her down, and quite unable to rise. I was requested to attend as early as I possibly could, and was informed that she was labouring under this complaint, which I am as yet, for the want of a better term, compelled to notice under the head of milk or puerperal fever. When I arrived, I found my patient in the precise state as Cases III and IV. The hind extremities had apparently lost all power of motion; she frequently endeavoured to rise, and it was with some difficulty that she could get on her fore legs. I should also observe, that the animal appeared feverish, yet no alteration in pulse or respiration was perceptible; the act of rumination was suspended, and the secretions and evacuations from this time were partially so. I treated this case as the former ones.

In about twenty-four hours after, the bowels became relaxed, the animal voided her urine, and she yielded more milk, but was still unable to rise.

In about sixteen hours after this, she began to regain her former strength, got on her legs (which appeared like posts under her for a little while), yielded a considerable increased quantity of milk, and from this time to the following day she gradually got stronger, and appeared when I called to see her in perfect health.

Cases of this description are not so common as those in which there is a total and general prostration of strength: although but few of the latter have fallen to my lot to treat of late, compared with the former. As I have before stated, my practice in this town is but limited as it respects the diseases of cattle. They are principally entrusted to the care of a class of ignorant men called "cow doctors:" and I assure you that I know men of this class who recommend the owner to destroy the animal at once, and sell her for beef, rather than endeavour to combat the disease when the prostration of strength is general. So far as I have been able to ascertain, I find the disease is in this neighbourhood generally considered to be of an inflammatory character, and the plan of treatment is, of course, of an antiphlogistic kind. Large bleedings are almost invariably had recourse to; and I do not for a moment doubt, but that many an animal has been killed by the injudicious abstraction of blood. I have now given you the history of the cases that have fallen under my notice since I was amongst you. I flatter myself that I have advanced sufficient to prove that we have two if not three forms or varieties of disease comprehended under one common term, which leads us to suppose that a state of things exists which in reality does not. A more extended and considerate view of the subject has tended to confirm the opinion I some time ago advanced,—that the term puerperal fever, by which this disease has hitherto been designated, is totally erroneous, and altogether insufficiently expressive of the true nature and character of the disease. From an attentive consideration of the general symptoms, and of the post-mortem appearances of those cases which have been subjected to my notice, it is my firm conviction that the disease is directly opposed to one of an active and inflammatory kind*.

* Allow me to take the present opportunity of stating, that this was my firm opinion at the time I introduced the paper on this malady. I feel it to be requisite that I should make this statement here, owing to there being an

The circumstance of this affection attacking cows shortly after parturition, that is, from a few hours to two or three days, has induced persons to believe, without ascertaining the pathological state of the case, that it is analogous in its nature to the puerperal fever of the human female. They have also, from assimilating its proximate causes with that of the human subject, incorrectly viewed the disease as depending upon inflammation of the womb, its appendages, or connecting peritoneum, and thus they have been led into a most fallacious diagnosis, and an improper mode of treatment. My inspection of the organs of generation, as well as the examinations of others, on whose statements we can rely, from a knowledge of their anatomical and pathological skill, has not detected any degree of inflammatory action or appreciable lesion of these parts. It is, therefore, apparent that some other morbid condition must constitute the main feature of the disease. We find that cows are only liable to it shortly after parturition; and when we are called upon at an early stage to render our assistance, we also find at this period the animal presenting to our notice those appearances which clearly denote a complete prostration of the vital energies; such as an entire loss or deprivation of muscular power; having fallen down, she is totally unable to rise, or even to support the weight of her head, it being turned back, and resting on her side or the earth; she is quite insensible to surrounding objects; the secretions and evacuations are suspended, and she is unmoved by all external impressions. The pulse is small, quick, and feeble, and sometimes below the

error in the Abstract given of the paper, in *THE VETERINARIAN* for June, 1837. It is there stated, page 199 of the Proceedings, line 18, "that I considered plethora to be the predisposing cause, and that in its primary stages it is of an inflammatory character; yet at the period when the aid of the practitioner is usually solicited it has assumed a typhoid character, accompanied by great debility of the nervous and vascular systems."

Now my words were (as the original essay will prove, and which may be seen in the library of the Association), "From the preceding remarks you will have ascertained, that I consider plethora to be the predisposing cause, by being productive of a diminution of muscular power, in consequence of which a greater degree of excitement is produced in the system, and debility in proportion to such excitement." After quoting from the work on Cattle, I proceeded to say,—"The disease, then, in its primary stages, MAY BE of an inflammatory character; yet I am fully satisfied that at the time the aid of the practitioner is solicited it has assumed a *typhoid type*, characterized by debility in the nervous and vascular systems."

Fearing on a second consideration, from the ambiguous manner in which I had expressed myself, that it might be inferred that I was of opinion that the disease did commence in inflammation, I again introduced this point in the observations I made in reply to Mr. Youatt. I then said, after mentioning the brief manner in which I had expressed myself, "Now I do most firmly believe that, in the majority of cases, it neither commences in inflammation of such viscus (i. e. the uterus), or ever becomes of the true inflammatory character, but assumes a typhoid form from the commencement." I have introduced this subject, in order that I might point out what my views were then on the nature of this malady.

natural standard; there is loss of deglutition; and the eyes appear dull and dead, and are quite insensible to the strongest rays of light.

From these symptoms it is evident that the animal is affected *primarily* with a considerable derangement in the natural and vital endowments of the nervous centres and their extensions. The prostration of strength rapidly progresses, and the functions of the different systems of organs seem to be carried on with languor and inefficiency; in fine, as I have before *publicly stated*, the whole system appears throughout the progress of the disease to be suffering from that extreme depression which truly characterises a fever of a *low and typhoid description*.

In reasoning thus far from analogy, allow me once more to draw your attention to a beautiful passage in Mr. Percivall's *Lecture on Fever in Horses*. He says,—“If we can prove that fever in horses is essentially the same in its nature, so far as we can judge from its principal symptoms, its general causes, its common progress and termination, we do all that is necessary to establish its existence; but we can do more. Its symptoms individually will even admit of a comparison with those of human fever, and to me too plainly indicate the same derangement of the system at large to be reasonably ascribed to any other organ.” This passage is truly applicable to the subject under consideration. I would here ask,—Does not the principal symptoms, general progress, and termination of this disease admit of a comparison with those of adynamic fevers in the human subject? and do they not bear a direct opposition to those of an inflammatory kind?

In those cases which have been minutely examined after death, the whole or a part of the brain, its coverings, and also those of the spinal cord, have been found highly congested; and, judging from the loss of sensibility, the stupor and coma which generally exist, either active congestion or a state of inflammation has existed in the brain and its membranes*. Now, I am induced to believe that the affection is one originating in a depression or deprivation of that nervous energy which is essential to the performance and support of the vital functions. That the circulation in consequence becomes languid, congestion of some one or more parts takes place, the decarbonization of the blood is imperfectly performed, and the animal rapidly sinks, as it were, in an asphyxiated state.

From this let it be understood, that this is taking a general view of the case; but we find that there is a certain form or modification of this disease which principally attacks the hind extremities dependent upon a paralysis of those nerves of voluntary motion which are distributed to those parts:

* It is my opinion that these parts have been in a state of active congestion rather than of inflammation: such an opinion I formed from finding that the symptoms were nothing like so violent as those which accompany phrenitis, which the cow is occasionally subject to. Again, if they were inflamed, I should expect the disease to come on gradually, becoming more and more violent, instead of its coming on, as it were, instantaneously.

therefore, in practice, we are enabled to distinguish *two distinct* forms of this disease, one affecting the body generally, and equally involving the two great divisions of the nervous system; viz. the cerebro-spinal and ganglionic, and which has rapidly proved fatal: the other, which is more partial in its effects, is of a milder character, and chiefly consists in a loss of power in those nerves which are derived from the lumbar and sacral portions of the spinal cord.

I have witnessed a few cases of real *uteritis*, precisely the same as Case 6, where there was a loss of power in the lumbar and sacral nerves (as I have just described) arising, as I should suppose, from extension of inflammation: such, I doubt not, has given rise to the opinion that the disease called puerperal fever originated in inflammation of the womb, eventually becoming a general inflammatory fever. But such is not the case: such instances are, in fact, rare. I have not seen more than three cases since I entered the profession, and all these have shewn clearly that the womb was the seat of disease by the inflammation being continued to the external labii, which are red, and swollen, and the mucous membrane of the vaginal canal has been almost of a black colour, and from it a most unhealthy discharge has issued. Such appearances I have never (with the above exceptions) witnessed in the disease under consideration. As it has been before mentioned, that the term puerperal fever is inadequate to impress upon the mind any correct notion of the disease in its general acceptation, I would suggest the adoption of another name; and from the circumstance of the disease occurring shortly after parturition, and from its being attended with a general loss and sinking of the nervous power, and vital manifestations of the different organs, according to my opinion the term *MOSCHOTOCIC ADYNAMIC FEVER* (the meaning of which will be sufficiently comprehended by a reference to its Greek origin), as being better suited to direct the understanding in forming a correct notion of the disease, and thereby leading us to the adoption of such a mode of treatment as will hereafter be attended with more successful results.

It will probably be expected that I should make a few observations on what I might consider the best mode of treating the disease after such a lengthened epistle.

I have found the means I recommended in my first Essay to be attended with the best effects; but I must add, that I have carried the stimulating plan to a greater extent than is there advocated. I always give a diffusible stimulant as soon as possible: the sesqui-carbonate of ammonia is my favourite agent. For further particulars on this head I must refer you to the original Essay in the Transactions of the Association for June 1837; with the exception of bleeding, upon the propriety of which I have as yet to make a few observations.

Some few friends have discarded blood-letting, which they resorted to

from an idea that the disease was of an inflammatory character; and have adopted just the opposite plan of treatment, and, I must say, to their great satisfaction.

The system of abstracting blood generally, to a great extent, has not tended to ameliorate the symptoms, but death has, in many cases, rapidly followed; whilst, on the contrary, the administering of stimulating remedies has appeared often to revive and support the sinking powers of life, and to be followed with much apparent relief.

I have already stated that there exists a congested state of the lungs, and of the brain and spinal cord, which requires for its relief a diminution of the volume of blood, in order to unburthen the loaded vessels of these parts; but depletion must be adopted with due caution. I would never bleed to any amount unless I was warranted by the pulse. I would certainly, when I deemed it necessary, withdraw blood, but it should be only in small quantities, say three or four pounds, and repeated if the symptoms demanded it. The relief the withdrawal of a small quantity of blood gives, is often most marked. I consider that by adopting this plan, by relieving the vessels of a portion of their undecarbonized blood, tone and vigour are given to the whole vascular system. This is a general view of the subject, and practical facts appear to bear me out in this opinion.

I must now, Gentlemen, draw this paper to a close. I fear I have already occupied too much of your valuable time; the subject however is worthy of it, although I cannot say much for the preceding observations. I have, however, fulfilled the promise I made when amongst you, of communicating to the Association what might fall under my notice worthy of being imparted, connected with this malady; and I now leave it for your consideration.

Illustrative cases of Puerperal Fever, by Mr. WARDLE, of East Sheen.

Gentlemen,—BEING informed by our worthy Secretary that a paper is to be read in the Association, on the disease called Drooping after Calving, or Puerperal Fever, although I am aware that there are many members of the profession who could do more justice to the subject than I can, yet, at the same time, I feel great pleasure in adding my mite, not being able to be personally present; and should my remarks be deemed worthy of your acceptance, I shall be gratified.

It is my opinion, that this disease puts on different appearances in animals, probably owing to the difference in breed and peculiarity of situation.

I have found it less frequent in the Alderney breed than in the Suffolk, Short-horn, or York, &c. Unfortunately, the majority of cases that have come under my notice have proved fatal.

I have been induced to conclude, from practical observation, that this disease is not infectious; this, at least, is my individual opinion. Of course, I allow others to form their own.

On referring to my case-book, I find that this malady has been most prevalent from the fifth to the seventh calf, and those animals that are in a state of plethora are more frequently the subjects of it than others in low condition. Although these are not exempt from the malady, I have nevertheless found them the most favourable cases.

I will now enumerate some instances that have fallen under my notice, and proved fatal; and conclude with a few successful ones.

CASE I.—A cow, the property of W. G——, Esq., of Palewell Lodge, East Sheen. She was of the short-horn breed, in a state of plethora, and, to all appearance, was well at eight o'clock in the evening in the month of June 1837, being the third day after calving.

I was called in on the following morning at five o'clock, when I found nature nearly exhausted, and the case too far gone for human ability to afford any relief. At six o'clock she was dead. This cow being well at eight o'clock in the evening, and within ten hours afterwards dead, I have no doubt that she dropped as soon as she was left in the evening, as the litter and every thing near her was much disturbed by the violence of her struggles. From the animal being a great favourite of the owner I was prevented from making a post-mortem examination; she was, in fact, buried when I arrived for that purpose.

I merely relate this case to shew how speedily the disease will run its course.

CASE II.—A cow, the property of M. B. Esq., of Sheen Lodge. She was a half-bred Alderney, and in a very high state of condition, and had calved well on the 6th of January, 1838. On the 9th, she dropped early in the morning, and at eleven o'clock in the forenoon I was summoned. However, I was not at home until one o'clock, and I then lost no time in visiting my patient: but, I arrived just in time to see her make her last struggle.

Post-mortem Examination.—The abdomen was much distended, the stomach and alimentary canal were filled to repletion with gas, and the fæcal matter was very hard. The kidneys were much inflamed, also the uterus, and all the contiguous viscera. The lumbar portion of the spinal marrow was likewise much inflamed, and inflammation was only observable at this part.

This was the animal's fifth calf. I had attended her for the first and second calves, which were very large ones, and I had some difficulty in extracting them; but the cow did well after each.

CASE III.—A cow, the property of Lord S——d, of Richmond Park. This animal was of the Suffolk breed, and in fine condition. She calved on the 16th Feb. 1838. The second day after calving she was found down, struggling violently; throwing her head towards her sides; eyes staring; extremities cold; bowels constipated; pulse 70, and wiry; and breathing laborious. I gave her sulphate of magnesia lbj, with enemas every two hours. Six hours afterwards, another draught was given, composed of sulphate of magnesia lbss, pulv. digitalis 3j, pulv. antim. tart. 3j pulv. nitrat. potass. ʒiiij; and I ordered the enemas to be continued. On visiting my patient on the second day, I found her no better. She was lying on her side, and bruising herself very much. His Lordship being present, and grieving to see her in such agony, while I could give him no hopes of her recovery, requested that she might be immediately destroyed.

Post-mortem Examination.—The appearances after death were similar to those described in the above case, with the exception, that the whole of the spinal marrow was inflamed instead of a portion of it. The heart was also slightly inflamed on its external surface, and the lungs were hepatized. It is my opinion that this cow laboured under chronic disease of the lungs previous to calving.

These being three unsuccessful cases, will be as useful as the enumeration of many more. I would observe, that I have found in other post-mortem examinations, the spinal marrow inflamed; in some cases more so than in others, and also at different parts.

I will now enumerate a few successful cases.

CASE I.—A cow, the property of the late Marchioness of D., of Rochampton: of the Alderney breed, and in a high state of plethora, calved on 6th Aug. 1837; but dropped on the 9th. The herdsman informed me that she had every care after calving, but when she rose up in the morning, she staggered, and stood some length of time not at all disposed to move, and would not let down the milk to the calf, but soon dropped. Her udder was not distended so much as it generally is after calving. I was called in about three o'clock in the afternoon. I found her down, and the following symptoms present. Pulse 80, but feeble; extremities cold; bowels constipated; indeed, they had not acted for several hours previous to my seeing her. I gave her sulphate of magnesia lbj, ordered enemas to be thrown up frequently, and clothed her up well. Six hours afterwards, the symptoms being still unfavourable, I gave her sulp. mag. lbss, pulv. zingib. ʒij, and repeated this every six hours until the bowels responded—the enemas being continued. I also directed a quart of gruel to be given every three hours, with strict injunctions that it should be administered gently. The next morning I found my patient still no better, and she had a strong pulse, at 90. I therefore abstracted four pounds of blood, by which the character of the pulse was much altered. I added tinct. of croton ʒiiij, to sulph. mag. lbss, and also pulv. zingib. ʒij;

directed the enemata to be continued, and the spine stimulated with equal parts of liquor ammoniæ and ol. olivæ. On visiting her again at six o'clock, I found her relieved, and the bowels beginning to act. I ordered her a little wet bran, which she ate. About ten o'clock she got up, and stood for several hours, and then lay down again. The next morning I found her up, but she appeared to be a little languid. I therefore directed that she should have pulv. gentianæ et zingib. of each ʒiij in her gruel. On the following day I found the patient to be still improving, and I recommended the draught to be continued for a day or two longer. I am happy to say, that after this she required no further treatment. This cow had three more calves while in the same owner's possession, but no other unfavourable symptoms occurred.

CASE II.—A cow, the property of the late Rev. T., of Barnes—short-horn breed. She calved on 16th Feb. 1839, and dropped on the 17th. The symptoms being similar to the above case, the same treatment was adopted, with the exception of the tinct. of croton and bleeding; the pulse not warranting me in the abstraction of blood. On the 20th she got up, when I ordered her tonic medicines in her gruel, as in the preceding case: the result was the same.

CASE III.—A cow, the property of Mr. L.—d, of Mortlake, Yorkshire breed, in fair condition, calved on the 21st Jan. 1840, and dropped on the 22d. I was not called in until night. On examining my patient, the following symptoms presented themselves:—A strong pulse at 90; bowels constipated; extremities cold; and animal very restless. I found, after having been there a short time, that I was the second person called in. I gave her magnesiæ sulphat. lbj, tinct. croton ʒss, and stimulated her spine with ammonia and oil. I also abstracted six pounds of blood, and, it being ten o'clock at night, I left her until four o'clock the next morning; when my patient apparently was no better. The bowels had not acted; she was looking very anxiously at her sides; the pulse, however, had fallen to 70. I gave her magnesiæ sulphat. lbss, pulv. zingib. ʒij, tinct. croton ʒss, and ordered the spine to be stimulated again. At eight o'clock in the morning, I found her much easier, and the bowels acting. I directed her to have a little wet bran, which she ate. At six o'clock in the evening she got up, when I gave her ginger et gentian in gruel, and requested that she might be kept quiet, and to be well milked, also to let the calf remain with her after milking. On the following day I found my patient doing very well.

The owner gives me to understand, that they never had a cow saved before this one; and, although a near neighbour of theirs, they being very fond of "quacking" their own cows, I never was called to one before.

I begin to fear these uninteresting remarks will be considered as trespassing upon the time of the Association, for I well know

that others can occupy it much more usefully ; at the same time, I cannot let this opportunity pass without making a few comments on blood-letting, being convinced that I shall be pardoned by the members for so doing.

I am of opinion that no man can lay it down as a decided rule in this disease that he must bleed, or that he must not ; but he will be always guided by that grand standard—the pulse. I have sometimes had recourse to the abstraction of blood with benefit ; and at other times I have done so without any benefit. The practitioner, consequently, must be here governed by the symptoms of his patient, as in other diseases.

I differ, therefore, with those gentlemen who say, that this or that must be done ; and I would recommend the medical attendant to exercise his own skill and judgment in those matters, for he will find that all cows will neither require nor bear the same kind of treatment.

Perhaps some may condemn me for giving such large doses of the sulphate of magnesia, combined with the tincture of croton, they recommending much smaller doses, with sulphur, &c. I can only say that I have not been so successful in the use of small quantities of purgative medicine as with large ones ; and I confess that I am a great advocate for getting the bowels well acted upon in this disease, while I have never experienced any ill effects from large doses ; indeed, I am well persuaded that to get the bowels open is our sheet anchor in the eradication of this peculiar malady.

The imperfection of these remarks must in part be attributed to my being so much engaged at the present time ; but should another opportunity present itself, I will not let it pass without a few more observations on this important subject.

The Secretary said that he had hoped to have had the gratification of reading many more communications from members of the profession on this very interesting subject ; and he was sorry that the state of the weather was such as prevented many friends from being with them. Only one feeling could actuate all present, and he was sure that he expressed their sentiments when he said the thanks of the Association were deservedly due to Mr. Dawber for his valuable observations. Nobly had he fulfilled the pledge he gave when first he introduced the consideration of this peculiar disease to the Association.

He (the Secretary), however, had received letters from a few friends, containing some remarks which he thought ought not to be lost by the profession ; and although they might be considered

almost as private communications, yet he well knew that he might take the liberty of making these portions public. For his part, he estimated the opinions of practical men; and the names of those from whose letters he would read extracts were familiar to most of the members, and, with himself, the Association had cause to feel obliged to them.

The first was from Mr. Dickins, of Kimbolton. He says, "as it respects puerperal fever, I fear, after the many valuable opinions you will have received from others, you will consider me presumptuous in offering mine; but, to be concise, I will at once give it. I consider it to be decidedly an affection of the spinal cord; and no one, I think, has hit the right nail harder upon the head than my neighbour Mr. Rogerson, in *THE VETERINARIAN* for May 1840.

Treatment.—I seldom bleed, and never when called in late. I make use of active stimulants along the course of the spine, and unload the stomachs and bowels by means of full doses of sulphate of magnesia combined with carminatives. After I have effected this desired object, I have recourse to a favorite medicine of mine, one I believe peculiar to myself, and in which I place the utmost confidence. I have designated it *the etherial tincture of opium*, and it is made as follows:

Take of

Opium in powder.....	one pound
Spirit of nitric ether....	eight pounds

macerate for fourteen or more days, keeping the solution on the dregs for use. Of this I give two or three ounces twice in the day, and find it eminently successful."

The cautious and modest remarks of Mr. Mayer, jun. he should read with much pleasure. He says, "With regard to the object of your letter, I need not say to you how happy I should be, and am at all times, to fall in with your wishes, provided I can do so in unison with my own feelings and intentions.

"In giving, however, an opinion upon any disease, I like to speak from my own personal observations, and to gather as far as I can the conclusions of others prior to forming my own. Now, with regard to Puerperal Fever in Cattle, since I have been in practice, I have had very few opportunities for those observations, and what I have been able to gather from others is so contradictory, that I have not been able to form any definite opinion on the disease in question at all satisfactory to my mind.

"*The symptoms* are easily recognized, and are, I think, tolerably well understood ; but the disease has been cured under every plan of treatment. If there is only one cause, and always the same effects, I do not see why one plan should not, if properly applied, generally succeed. It is very fatal, and in some districts considered so incurable that the animal when taken is generally destroyed. At present I am disposed to believe that it is a malady induced by a variety of causes, acting principally upon the nervous system, and producing one general class of symptoms, varying only in their urgency ; also that it requires not one general plan of treatment merely, but one suited to the stage of the disease, the probable cause of the attack, and the constitution of the animal : and this the man of observation and practice can only supply and succeed in."

The last was from Mr. Titchmarsh, of Bishop's Stortford. "As it respects Puerperal Fever, I fear we are yet much in the dark, after all that has been said about it. This only should stimulate us to further investigations ; and I rejoice to know that these are likely to be instituted. I feel that I can throw but little light upon the subject. It differs from that disease which attacks the female of the human subject after childbirth, and also the sheep, and is it not infectious.

I, however, feel convinced that by the timely use of calomel and opium, combined with aperients, and counter-irritants along the spine, we may overcome the disease in the greater number of cases. Blood-letting should be resorted to with the utmost caution, and only at the fitting time. A want of judgment here is often attended with fatal consequences ; hence the value of experience and observation."

Mr. Donaldson said that he had seen many cases of puerperal fever, and had generally been successful in the treatment of them. His practice had been to obtain, first, a free evacuation of the bowels, and then to introduce setons on each side of the lumbar vertebræ, anointing them with ammoniacal liniment. If the bowels did not respond freely, their action was to be excited by the exhibition of smaller doses of purgative medicine, assisted by plenty of warm gruel. He also found a fresh sheep-skin applied over the loins to be an excellent counter-irritant. After the bowels were opened, he administered tonics, and, generally speaking, he had succeeded in restoring the patient to health. It was also a custom in his part of the country to bleed the cow a few days previous to her calving, and in most cases that preventive had been found to answer exceedingly well.

The cow was usually attacked with this disease after the third or fourth calf, and very rarely after the first. He could not say whether a cow was liable to the disease a second time ; but he had never attended on one for a second attack, nor heard of any well-authenticated circumstance of the kind.

Mr. Fryer begged to avail himself of the opportunity of stating what he considered to be a frequent cause of the disease. In many country places it was often the custom, about the time of calving, to allow the cow a different kind of food; a course of proceeding which too often tended to produce some derangement of the digestive organs. It was very common, too, after calving, to give the cows hard food, without attending properly to the state of the bowels. The disease generally appeared from the first to the third day, but after that period seldom or never.

Mr. Dawber had said that he would not bleed in this disease. Now he considered the attack, in the first instance, to be of an inflammatory character, affecting the membranes and the whole of the viscera connected with the digestive apparatus; and he had often noticed that, if the patient was not bled soon after the commencement of the disease, the veterinary surgeon was unable to do so at a later period, from the peculiar state of the blood. Twelve hours after the attack the blood was black and almost viscid; indeed it could scarcely be withdrawn.

The symptoms, according to his observation, were reeling, and great debility in the region of the loins. The cow then fell, was unable to rise again, and at length she gradually lost all sensation, as was evinced by her throwing about the head, and beating it violently against the ground and the sides of the stall. The bowels soon became costive; and it was well known that as soon as the bowels were called into full action the disease was cured. Then comes the question, what particular organ or organs are affected? The liver had been sometimes found in a gangrenous state, the lungs much inflamed, and the vessels of the spinal marrow and meninges of the brain highly congested.

Inflammation of the stomach and bowels he considered to be the origin of this disease; and he was of opinion that if veterinary surgeons in their investigations as to the nature of diseases were to consider more the character of the blood rather than the state of the solids, it would be attended with considerable benefit. The attack was generally about the third calving, and when the cow was probably from four to seven years old. It seemed as if the cow was then more liable to the disease than at any other period of her life. It very seldom happened that a veterinary surgeon was called to assist a cow at the first calving.

Mr. Simonds said that, perhaps, it would be expected he should make a few observations on the disease now under consideration, he being one of those who was frequently at their meetings—who devoted with great pleasure a portion of his time to attendance upon this class of our patients—and who had, as they would remember, introduced to their notice at various times morbid parts taken from patients that had been destroyed by this sadly fatal malady. He must, however, confess that he offered his opinion on this destructive complaint with greater diffidence than upon any other of the diseases to which cattle are liable; for it did most certainly appear to be less understood than any of the other affections—it seemed to be the very acme of the ills with which the lower animals were inflicted, bidding defiance to all varieties of treatment adopted to arrest its progress, and terminating almost always in death. Much light had, however, of late been thrown upon its nature and treatment by members of the profession in original communications to *THE VETERINARIAN*, as well as through the medium of this Association. Among those to whom we were principally indebted for information was *Mr. Friend, V.S., of Walsall*—that gentleman being, he believed, the first among us publicly to attack the common and erroneous opinion that this disease essentially consisted of an inflammatory state of the parietes of the uterus.

At the outset, the exertions of *Mr. Friend* tended perhaps more than those

of any other member of the profession to place the disease upon a true and proper basis, by tracing it to the nervous system. Valuable as were the views and opinions of Mr. Friend, they were possibly a little too much confined to one division of this all important system.

To others, likewise, great obligations were due, more especially to those who had from time to time forwarded to the Association morbid parts connected with this disease, and accompanied them with a history of the cases. To Mr. Dawber, the gentleman who had introduced this Essay, we were particularly indebted—this thesis being the second from his pen upon the same subject; thereby proving still more, if this were necessary, how honestly and ardently he was devoted to the onward progress of our art. He repeated what he had before stated, that he approached this subject with diffidence, believing as he did that we were yet but in the infancy of our knowledge respecting its true character.

On some previous occasions when he had ventured to offer his opinions upon this disease, he much regretted that his observations should be so incorrectly reported in the published accounts of their proceedings. This probably arose either from his incapability clearly to state his views, or from the reporter not correctly noting the remarks which fell from him. He was, however, diverging from that which was now before them, and his only object in alluding to it was to set himself right with the members of the profession who only knew of that which took place in this theatre through the medium of the published proceedings.

Mr. Dawber, in his Essay, objected to the name "Puerperal Fever," which was usually applied to this affection; and he agreed with him on the impropriety of the name, for it bore no resemblance to the disease thus designated which followed parturition in the human subject. The cow alone seemed susceptible of this specific disease. The mare, the ewe, the bitch, and the sow, so far as his observation and experience had gone, were never thus affected after parturition; although it must be borne in mind that these animals were, by no means unfrequently, destroyed by inflammation of the uterus following the bringing forth of their young. Why the cow alone should fall a sacrifice to this specific malady was a question that at present he should not attempt to explain; but he would ask, if—and as he believed that this was essentially a cerebral disease—there is any thing in the *conformation* or habits of the animal which would satisfactorily account for this susceptibility? It was his opinion that no man could hope to assign a true reason for this unless he made himself *perfectly master* of the anatomy and physiology of the animal.

Having found fault with the present name given to the disease, it, perhaps, might be expected that he was prepared to propose some better one. The author of the Essay had done this; but he must confess that the terms "Morchotocic Adynamic Fever" he thought rather too abstruse. He liked far better—it being more simple and pointed—the name proposed by Mr. Friend, namely, "*medullitis parturiens*." It was, however, scarcely worth while to differ about the names given to diseases; let that which is most consistent with the nature and character of the malady be retained.

When he was treating patients suffering from these attacks, the question had frequently been put to him, "What is the matter with the cow?" His general answer was, "A disease similar to apoplexy, dependent upon parturition. If his views were correct, a scientific name could without difficulty be found for the disease in the terms "*encephalitis parturientis ruminantis*;" but to this objections could easily be raised, and he was not anxious, as he had before stated, to be giving new names.

From these remarks it would be evident that he agreed with the author of

the thesis in regarding this as a disease attacking the nervous system. Now it would be right to inquire how far these opinions were carried out by a reference to the symptoms presented by cases of this description. It would generally be found that the animal had calved without any unusual difficulty, and that her owner had had no fears respecting her going on well, she having eaten, ruminated, &c. since parturition. Suddenly, however, she was observed to stagger in her gait, having apparently lost the power of supporting herself. She refused her food, looked wildly, and breathed heavily. Becoming alarmed at these symptoms, the owner seeks veterinary advice, and, should the practitioner be near at hand, so as immediately to attend the case, he will find the following appearances more or less quickly present themselves:—She is not yet down, but she staggers to and fro; the head is unsteadily supported; the eyes are prominent, and probably the conjunctival vessels considerably injected; she occasionally moans or utters a suppressed bellow; recognises for an instant her calf, and then staggers and falls. She makes an ineffectual attempt to rise, and falls again. Her countenance is now indicative of acute suffering; she throws herself on her side, and this it is, not unfrequently, extremely difficult to prevent. The pulse is increased and oppressed; the breathing accelerated and heavy, and the surface of the body clammy. Presently she becomes hoven; she suffers more acute pain; eructations of gas ascend the œsophagus; the extremities are cold; the bowels constipated; respiration more heavy and difficult. Should we succeed in keeping the patient lying upon her side, which can only be effected by well propping her up with bundles of straw, the head will be turned towards her udder, the muzzle resting upon the floor, or occasionally it will be raised and forcibly thrown backwards; while, in other cases, where the degree of coma is less, the patient endeavours to support the head in a natural position: but it is evident the muscles are unable fully to accomplish this—it totters, as it were, at the end of the lever.

In the next stage she becomes comatose—the pupils are dilated, and insensible to the stimulus of light—the power of deglutition is lost—the maternal recognition of her calf is gone—the breathing becomes stertorous and more difficult—the pulse still more oppressed, and frequently scarcely to be felt at the jaw—the extremities deathly cold—she is more hoven—exacerbations of suffering succeed each other—the secretions and excretions cease—the prostration of strength becomes more and more evident, until she sinks and dies, generally within forty-eight hours from the first attack.

Occasionally this disease runs its course with fearful rapidity. Several instances of this have fallen under my observation. Among them is one which I will relate. A cow, about five years old, the property of a milk-woman, was turned upon a common to pasture with her other cows, coming up with them twice a-day, at milking time. One morning in the month of June, not being thought so near the period of parturition, she was as usual turned out, and calved on the common. The calf was produced without any unusual difficulty, and shortly afterwards it was conveyed home—a distance little short of a mile—in a wheelbarrow, the cow most anxiously attending it. Being safely arrived at home, the cow was supplied with a bran mash, and her milk well drawn.

At this time she appeared to be perfectly well; but after the lapse of something like an hour, she was observed to stagger forwards, and to have a wild unconscious stare. My attendance was immediately sought. Living near to the spot, and being at home, I was with my patient in the course of a few minutes. I found her up, but reeling to and fro, as if ready to fall every instant. The tongue was protruding from her mouth—she was bellowing,

evidently expressive of acute suffering—the eyes were full and much blood-shot—the breathing hurried—the pulse quick and bounding. I immediately opened the jugular, and the blood flowed in a good stream. During the bleeding, she fell, but it was not until an impression was made on the circulation by the loss of the blood that it was arrested. A bold and active cathartic was directly administered, and other necessary treatment adopted; but, notwithstanding all our attention, the disease ran its course most rapidly. In two hours she was in a state of perfect coma, and in about five hours from the attack she died.

A post-mortem examination shewed the uterus and abdominal viscera to be healthy. The lungs were somewhat congested, while the vessels of the brain and anterior portion of the spinal marrow were distended with blood, almost to bursting. This case would be called one of puerperal fever; but I am of opinion that parturient apoplexy is far more consonant with its true nature.

The causes of this disease!—Here I fear that at present little can be offered satisfactorily to account for this direful malady, or why the cow alone should fall a victim to its attack. Has the sudden throwing back into the system of so large a quantity of the circulating fluid as is required up to the period of parturition for the support of the fetus, any thing to do with it? or is there any peculiarity of conformation which will enable us to account for these cases? The cow, perhaps, is short in the cervical vertebrae in proportion to her size; and we know that an exceedingly great quantity of blood is sent to the brain. This is proved by the provision made by nature for its return in the size and number of the venous trunks. The stomachs are large, requiring much food and time to fill them to the satisfaction of the animal, and for many hours in the day the head is placed low in the act of feeding. The number of cases is proportionally greater in the summer months, when the temperature most exerts its influence upon the circulation. These and other circumstances may probably predispose the animal to attacks of this disease.

The direct way in which this malady is brought about seems to me to consist of some morbid but inexplicable impression made upon the uterine nerves, which is speedily conveyed to the medulla spinalis, and hence to the encephalon. Congestion of the circulating fluid in the vessels of these organs and their meninges follows immediately; and thus, the *primum mobile* of the whole animal machine having become deranged, all the symptoms which we have seen to attend these cases are without difficulty accounted for. Hence the staggering gait—the laboured breathing—the oppressed and indistinct pulse—the anaurotic eye—the loss of the power of deglutition—the suspension of the secretions and excretions—the fermentation of the ingesta contained in the rumen, &c.; this depending, as I have before attempted to explain, upon the food exposed to heat and moisture obeying the laws of chemistry—the counteracting power, namely, the laws of vitality carried on by the due and healthy performance of the nervous function, being interrupted, or possibly destroyed. Hence, likewise, the state of coma—in short, the general paralysis which these cases uniformly present.

To me, Sir, it is strange that this specific disease should ever have been confounded with another, several cases of which are cited by the author of the essay, to which cows are liable both before and after parturition, namely, simple and partial paralysis of the posterior extremities, in which the animal is down and incapable of rising. After the acute fever and inflammatory action have been successfully combated, the animal eats and ruminates apparently with the same avidity as in perfect health.

When practitioners tell us of their successful cases of dropping after calving, and speak of that disease as though the patient uniformly recovered, this paralysis, to which I have alluded, constitutes, I am inclined to think, the affection of which they speak.

Only one case of that disease which I have described as approaching to apoplexy I remember to have seen previous to the act of parturition being fully accomplished, and this occurred last year to a cow, the property of a farmer residing in Twickenham. I was sent for in haste to attend the patient, and found her lying in a meadow adjoining the premises, into which she had been turned early in the morning, apparently perfectly well, although near the period of calving. She had been observed to be down some time, but was supposed by the men to be about calving, and, consequently, they did not at first go towards her, for fear of disturbing her.

When I arrived, I found her lying on her side, perfectly comatose, with an indistinct pulse—stertorous breathing—and the rumen greatly distended with gas. The fore extremities of the fœtus were protruding from the vagina; but all uterine action, as well as the propulsive efforts of the abdominal muscles, had ceased.

Being provided with an esophagean probang, I immediately gave exit to a considerable portion of the disengaged gas, which afforded some temporary relief. My next object was to effect the birth of the calf. This was accomplished with but little difficulty, the presentation being a natural one: the fœtus was perfectly formed, and delivered alive, but died shortly afterwards. The patient was now placed upon a gate, and conveyed home into a suitable place. Restoratives, and such other treatment as the nature of the case demanded, were had recourse to; but she sunk in about three hours from the time of my being called.

The post-mortem examination shewed the vessels of the brain and upper part of the spinal marrow turgid with blood—the lungs congested—the rumen somewhat distended with fermenting ingesta—the uterus healthy, as well as the abdominal and thoracic viscera.

Fortunately for the exemplification of the views I have taken of this disease, a case has recently occurred in my practice; and, it having terminated fatally, as too many do, I am enabled to lay the morbid parts before you. I will first give the history of the case, and then proceed to describe the changes that had taken place, although this might almost seem an act of supererogation so far as the brain and spinal marrow are concerned; for they speak for themselves, and incontestibly prove that those are the organs principally involved in the malady.

The patient was an Alderney cow, six years old, in good condition, and that had calved at six A.M. Apparently she was perfectly well during the following two-and-twenty hours, in which time the bowels had acted naturally, and rumination was performed.

At four A.M., on the following day, she was observed by the owner to stagger. He gave her a dose of purgative medicine, and, immediately afterwards, sent for me. On my arrival I found her down, and making convulsive but ineffectual efforts to rise. The extremities were warm, the pulse oppressed but quick, being about 80; the vessels of the conjunctival lining of the eyelids were injected; there was no distention of the rumen, and the animal was perfectly conscious. I felt convinced in my own mind of the nature of the case, and anticipated that all those symptoms which usually attend dropping after calving would shew themselves; nor was I wrong, as the sequel will prove. A dose of cathartic medicine having been already administered, I abstracted blood, and gave the following draught:—

R Liquor ammoniæ
 Tinct. lavandulæ
 Spt. etheris nit. ā ā f℥j
 Tinct. zingib. f℥ss
 Aquæ q. s.—Ft. haustus.

I next directed the spine to be well stimulated, and the general comforts of the animal to be attended to.

At noon the symptoms were increased in urgency. There was approaching coma—the breathing at times was stertorous—the head was inclined to one side, and indications of spasmodic pains of the bowels were present, with gastric eructations and increased secretion of saliva.

I repeated the draught, and re-stimulated the spine.

At seven p.m. the symptoms had become still more violent. The animal was evidently suffering increased pain, and the head was forcibly thrown from side to side, yet she was perfectly sensible. The rumen was now preternaturally distended, and the gaseous eructations more frequent. I partially evacuated the gas by means of the stomach probang, and gave spirit ammoniæ aromat. ℥iv in aqua q. s. The extremities were also stimulated, and cloths dipped in cold water applied to the head.

At ten o'clock I found her much easier. The state of distention of the rumen had disappeared, and the warmth of the extremities was returning. I now merely directed that her general comfort should be attended to during the night. On the following morning I found the pulse 100. No distention of the rumen existed. The extremities were warm, and, during the night, both the rectum and the bladder had been emptied of their contents, but, the state of the fæces calling for a laxative, I gave

R Magnes. sulphatis ℥j
 Pulv. zingiberis ℥ss
 Aq. tepidæ q. s.—Ft. haustus.

One p.m. on the next day.—Since my last visit a degree of unconsciousness has come over the animal. She lies on her side with her head thrown back. The extremities are again becoming chilly, and there have been no more alvine evacuations, while the pulse is unaltered. Inject enemas, stimulate the legs, and give, by means of the stomach-pump, in gruel—

R Liq. ammoniæ acet. f℥iv
 Spiritus etheris nit. f℥ss.
 Aq. q. s.—Misce.

Continue the use of cold applications to the head.

Eight p.m.—The animal more comatose, and the prostration of strength great—the pulse is undiminished in its number of beats, but is thready—the legs, horns, &c. are cold. She still lies on her side—the breathing is stertorous, and highly laboured—the mouth is clammy, and the bowels have not yet acted. Repeat the above draught, continue the application of the clysters, and re-stimulate the legs and spine.

I had no longer any hope of saving my patient, for from this time the symptoms increased in urgency, until, at last, there was a gradual sinking of the vital powers: all pain disappeared, and the animal died at about half past three o'clock in the morning of the 25th instant.

Inspectio Cadaveris.—On exposing the abdominal cavity the peritoneal envelope shewed no traces of inflammatory action. The rumen presented no abnormal condition, but contained some

ingesta which were of a pultaceous character. The contents of other compartments of this division of the digestive apparatus were in the same state as observed in health. The villous coat of the fourth division, or the true stomach, had upon it a blush of redness, more than is usually found; the intestines were normal; the uterus perfectly free from inflammation. Some little redness of the cotyledons was seen, and was present on those portions which connect the maternal and foetal placenta, but certainly not to a greater extent than we invariably find so soon after parturition. The remaining abdominal and pelvic viscera were free from all appearance of disease. The lungs were somewhat congested, the heart and aortic vessels healthy.

A section was next made through the body of the fourth cervical vertebra, leaving the head attached so as to preserve entire the medulla oblongata and anterior part of the medulla spinalis. A section was likewise carried through all the bones composing the spine, in order to expose the marrow with its investing sheath. Commencing our investigation at the cauda equina, the substance of the spinal marrow appeared healthy until we arrived at about the middle of the lumbar vertebrae, where it was evidently deeper coloured and soft for the space of a few inches, as was also the case in parts here and there as we proceeded in our examination towards the head. The theca throughout its whole course was inflamed to a much greater degree than I ever remember to have seen it—it appeared as if it had been steeped in some red dye. The vessels ramifying upon the anterior portion of the spinal marrow were much congested, and also those of the cerebrum and cerebellum, but certainly less so than many other post-mortem examinations have shewn. These abnormal conditions fully support my view as to the nature of the malady; and if they do not altogether agree with what others have observed, I would ask, *May not the high degree of inflammation of the uterus sometimes spoken of, as well as the same condition of other viscera both of the abdomen and thorax, be referred to the withdrawal of the vital energies in consequence of the original disease attacking the primum mobile of the animal machine?*

JANUARY 12, 1841.

The PRESIDENT in the Chair.

The Secretary reported that, since the last meeting of the Association, the Council had met and adopted the following resolutions, which they begged to submit to the members for confirmation:—

“That the request made by the Societies of Calvados, La Manche, and Finistère, be complied with; and that an exchange of the proceedings of the French and English Associations be forthwith made; and that the Secretary be requested to forward to each society copies of the proceedings of our Association, from the commencement.”

Also, “That the following gentlemen be elected as Honorary Associates:—Professor Magne, of the Veterinary School at Lyons; Mons. Callicux, President of the Veterinary Society of Calvados and La Manche; Mons. Lecoq, the Secretary of the same society; Mons. Dumssue, President of the Veterinary Society of Finistère; Mons. Elcouet, Secretary of the same. Professor Ferguson, F.R.S.E., of King’s College; Robt. Liston, Esq., of the London University; Erasmus Wilson, Esq., of the Middlesex Hospital; and W. C. Spooner, Esq., of Southampton.”

The following Gentlemen were also recommended as Corresponding Members of the Association:—

Mr. W. Ernes, of London, for foreign correspondence; Mr. J. Dawber, of Liverpool; Mr. G. Draper, of Melbourne; Mr. J. Tombs, of Pershore; Mr. S. W. Jeffery, of Blandford; Mr. D. M’Taggart, of Leeds; Mr. S. Hayes, of Rochdale; and Mr. R. Fentress, of Newcastle-upon-Tyne.

The recommendation of the Council was unanimously confirmed.

Mr. R. H. Dyer presented to the library Cloquet’s “Anatomie Descriptive.”

The following letter, containing the history of a case of SCROTAL HERNIA successfully operated upon by Mr. CHARLES S. ROBINSON, V.S., was then read:—

Gentlemen,—In laying before you a case in which I have lately been a successful operator, I hope you will not think me encroaching too much on your valuable time, nor seeking unmerited commendation. My desire, by this communication, is to add another proof to the many that have been already adduced of the advantages that result from an application of the principles of veterinary surgery to the alleviation of the sufferings of animals placed under our care, and I feel assured that you will give to my history of the case that attention which it merits: any subsequent remarks which you may make on this interesting operation will not fail to benefit our common profession. I believe it to be somewhat novel, and, on account of its novelty, interesting. The following, however, is a correct statement of the whole affair.

On the 8th of May, 1840, I was sent for by Mr. Wm. May, of South Ockendon, to examine a two-year-old gelding, which he informed me was badly ruptured, and had been so for twelve months—in fact, ever since he was castrated. On examination I found his statement verified; and truly I never saw a worse case of scrotal hernia in my life. The left side of the scrotum was of an immense size, and very hard in comparison with similar cases. I could trace a loop of intestine to the ring, which seemed to be very much dilated, and through which I could, by continuous pressure, pass most of the contents of the hernial sac: still there seemed to remain behind some substance which I could not get rid of. This rather puzzled me, but, at last, I concluded that there had been some adhesion within the scrotum. Having made my examination, I proceeded to give my opinion, which, as you may judge, was any thing but favourable. Nevertheless, I gave the owner hope that something might be done by perseverance. I was then informed that several of the farriers in the neighbourhood had examined the colt, and had given their decided opinion that it was impossible for any thing to be done to relieve such a case. This made me a little more ambitious to gain the wished-for end; and I agreed with the owner that I should take the animal into my own stable, and try all I could to restore him, giving him to understand that it would be some little time before any thing definite could be known. I therefore set to work to prepare proper bandages, &c., and received the patient into my infirmary on the 25th of the same month. I commenced by limiting my patient's diet, allowing

him no corn, very little hay, and making up with bran mashes and green lucern, yet very sparingly with all. In the course of a few days I fixed on an apparatus that I had formed, and which I will endeavour briefly to describe.

In the first place, I had two rollers placed round the body, one in the proper place behind the withers, and the other just before the flank. These were kept in their places by a crupper and martingal. Affixed to the first roller was a piece of wood with a forked end, in which was a cushion of wool sewed in baize. This was placed in contact with the scrotum, and, being passed between the body and the second roller, by means of it the pressure might be increased or diminished at pleasure. But I found all my pains and trouble apparently useless, and I felt convinced that the obstinacy of the case demanded something more than I had yet obtained. After keeping the animal braced up for ten weeks, and finding no benefit to result, I determined on the performance of an operation, now well knowing that it was the only step by which the hernia could be reduced for a permanency. Accordingly the day and hour were fixed, and, all being in readiness, I commenced.

The common routine of casting, &c. I need not go through, as that you have an opportunity of witnessing every day. All I need here say is, that the position in which I placed the animal was on his back, propping him safely up with straw, &c.; and, having done this, I proceeded to draw out and smear the penis over with lard.

I now made my first incision, about four inches in length, along the left side of the scrotum through the two first tunics, when my knife came in contact with a semi-cartilaginous substance, which proved to be the adhesion of the adipose lining, which I shall hereafter describe. Having dissected this away, I laid open the hernial sac to the extent of about two inches, into which I introduced my two fingers, and, by pressure, returned the loop of intestine into the cavity of the abdomen; but I found there was something more than intestine, for around the cavity I could feel small fatty prominences, to each of which seemed fixed a like substance leading to the ring, and thence into the abdomen. I now found that farther opening was necessary, which I did to the extent of about four inches, equal to the external orifice, when the internal surface of the sac presented to view one mass of adipose substance, and the semi-cartilaginous matter with which I came in contact on opening the scrotum. This was situated at the inferior part, and adhered to the eschar formed after castration. I found it was of no use to attempt to divide this omental-like substance passing through

the ring, and adherent to the whole of the internal lining of the sac, unless I dissected the whole of its attachments out, which I at once determined to do, by removing the entire hernial sac. I therefore first dissected this from its external covering, and then from its superior attachment around the ring. I now found the adipose membrane perfectly loose. I spread it out, and took up the bloodvessels by means of ligatures, which were five in number. I next returned as much of the membrane as I possibly could; having done which, I excised the whole sac and the attached adeps, which, on being put into the scale, was found to weigh $13\frac{1}{2}$ ounces. I returned the whole of the substance left into the abdomen, which being removed from the ring, I had a very large opening left to close. I could freely pass my three fingers into the cavity of the abdomen, which was witnessed by the bystanders with great astonishment. I now felt and found that all was clear. I next stopped the external ring with tow well covered with plain lard, drawing it out about six or seven inches, so that I might be able the better to remove it when I thought proper, should it not come away of itself.

Having passed up as much tow as I thought would fill the ring, I put two sutures across the external part of the aperture of the ring. I next had a large quantity of tow well saturated with a mixture of one-third lard and two-thirds of the common digestive ointment of the College Pharmacopœia melted together; this I introduced into the scrotum till I could only just make the lips of the wound meet, through which I passed four sutures of common twine well waxed. All seemed now done that was at present required; I therefore released my patient, having been eleven minutes and a half in performing the operation; that is, from the time I made my first incision. I had plenty of help, and he was raised on his legs carefully: when up, he shook himself, and seemed very little affected. I do not think he lost more than half a pint of blood during the operation, nor more than that afterwards. In the course of the day the parts commenced swelling, which kept increasing. The diet was restricted to bran mashes, with as much warm water as he would drink.

2d day.—The swelling has still more increased, causing great tension of the surrounding common integument. I clipped the two medial sutures. All seemed to be going on well. I dressed the external parts with the common digestive ointment, warmed. The fæces rather liquid, and the animal has staled freely.

3d day.—The swelling even more increased, but not in any respect alarming. I divided the other two sutures, and withdrew some of the tow, which I found coated with a sanguineous dis-

charge. Dress the parts as before. Fæces pultaceous. I ordered a double handful of corn in each of his mashes.

4th day.—Swelling somewhat lessened—rather more discharge around the wound. I removed some more of the tow, which was saturated with a purulent secretion, more healthy than that of yesterday. Dressed as before; diet the same. Pulse 30, natural; fæces not so pultaceous.

5th day.—Swelling much about the same as yesterday. Removed some more of the tow, with which came a quantity of good white pus. I began now to be somewhat satisfied as to the result, and felt convinced that all would go on well, should no unexpected circumstance arise: I therefore removed the remainder of the tow, and dressed the parts as before. The fæces being still pultaceous, I ordered a little more corn, and also a little hay.

6th day.—I removed the rest of the tow from the external cavity, which was followed by a quantity of laudable pus. I could now feel the pendent end of the pledget of tow from the ring, which I determined to try to remove, but, finding the sutures had not given way, I passed a pair of blunt-pointed scissors, and clipped them both, leaving the tow to come away by itself, i. e., if it would. I dressed as usual, and all seemed to be going on as well as could be desired.

7th day.—Swelling a little reduced—the parts discharging very freely. The tow had come down from the ring, and I removed it from the scrotum: the animal's general health apparently good. I ordered three feeds of corn per day, and an increased quantity of hay.

8th day.—Swelling much lessened. The discharge of a perfectly healthy character. I still employed the same ointment, soaking a piece of tow about the size of a clenched fist in it, while warm, and introducing it into the wound. In all other respects my treatment is going on well.

10th day.—Swelling reduced considerably. The parts discharging a large quantity of perfectly healthy pus. Ordered dressing as previously. All continues to go on well.

12th day.—Swelling much reduced, and wound diminishing. Was obliged to reduce the size of my pledget considerably. To the common dressing I made an addition of a little pulv. cupri. sulph.

14th day.—All going on as favourably as my most sanguine wishes could have led me to anticipate.

I adopted the same course of treatment daily until the wound became so small that I could not introduce the point of a small silver probe; after which I merely rubbed the external opening

with the same ointment, the application of which I continued for four weeks after the operation. I then considered the animal was perfectly cured, but detained him for a short time, to prevent the laceration of any newly formed adhesions, and that all might be perfectly united.

I operated on the 1st of October, and sent my patient home on the 12th of November, perfectly cured; and from being nearly a skeleton, which you may be sure I made him before I operated, he was as fat and in as fine condition as any colt ought to be, and as clean about the scrotum as if he had not been touched since castration. Need I add that this was to the great admiration and satisfaction of his owner, who prizes him very much? I have the honour to be, &c.

Orsett, Jan. 1, 1841.

P.S.—Possibly the following case may not prove uninteresting to some of the members. It will serve to point out the difficulties we have sometimes to contend with, and to shew how necessary a knowledge of anatomy is to the veterinary surgeon. Last summer I met with a singular malformation in a colt ten days old, which I should have communicated to the Association before, had not circumstances occurred to prevent it. On the 12th of May, I was sent for by Mr. M. G., of Bulphan, to the abovementioned patient, who informed me he had never seen him void any urine. The animal seemed in considerable pain, and there was great tension of the abdomen. I passed a long silver probe up the urethra, but the passage seemed all clear: there was also some tension of the scrotum, which I found was caused by an effused fluid. I determined, should the animal live, to introduce the trocar into the scrotum in the morning; but ere that time arrived the patient breathed his last.

Post-mortem examination.—On laying open the abdomen, a very large quantity of fluid escaped from the cavity, to the amount of about four gallons, having a very foetid urinous smell. All the internal viscera were in a state of inflammation, which was not to be wondered at. I next proceeded to inflate the bladder, which I expected to find lacerated; but, to my astonishment, all was apparently quite perfect. I then examined the kidneys, which likewise appeared healthy, and made an incision into one, and forced my probe (a very small one) into the ureter, which passed very easily, and to my great surprise came out in the cavity of the abdomen by a valvular orifice, just before it reached the bladder. I endeavoured to find its continuation to the bladder, but in vain; here it seemed to finish. I then proceeded to the other, which I found precisely the same. Perhaps I should

have observed, that, on the evening I was sent for, I administered some ol. lini et sp. æther. nit. ; but, after the description of parts above given, I need not say that all that could have been done would have proved ineffectual. It is evident that the animal's death was caused by inflammation from the urine in the abdomen acting as a foreign agent, it having no way of getting out.

The following Essay was then introduced by Mr. R. T. WALLIS.

ON LAMINITIS.

To the President and Members of the Veterinary Medical Association.

Gentlemen,—It having devolved upon me to introduce to your notice an Essay for this evening's consideration, I make the attempt with pleasure, but with great diffidence, being convinced that it is incumbent on us all, as members of the Association, to exert ourselves for the promotion of its noble objects. The Essay which I now venture to submit to you is on that sad disease, designated Laminitis, to which the veterinary surgeon during his professional career often has his attention directed ; and which, if not promptly combatted, soon effects irreparable mischief in that highly organized lamellated structure in the interior of the hoof on which the function of the foot may be said to hinge, and which is indeed the seat of the disease.

Causes.—The most fertile in the production of this disease are the following :—a horse has been kept long idle in the stable ; his system has thus acquired a somewhat plethoric state, and, the condition of his feet having been but little attended to, he is suddenly taken out, and called upon to perform severe exertion on a hard road.

It is produced in horses that have been accustomed to agricultural work. They are taken from this, and subjected to the concussion of a hard road. In consequence of this, and of the unusual and often new and immoderate exertion to which these animals are thus exposed, we have inflammation set up in the foot.

It is often the result of metastasis of other diseases, and particularly of pneumonia.

Professor Sewell has related several cases in which he has known it to occur in horses, after a hard day's hunt, being compelled to pass through a long tract of shallow water, such as is sometimes met with in by-roads. I have seen it induced, in one instance, by allowing a horse to drink plentifully of cold water

immediately after having undergone severe exertion. The manner in which I accounted for its occurrence was simply thus, that the cold water taken into the stomach and alimentary canal produced a partial collapse of the vessels, ramifying in the tunics of those viscera, also a partial suspension of the perspiration from the surface of the body; and the feet, being highly predisposed, became the victims of the most intense inflammatory action. The case that I particularly refer to was that of a well-bred post-horse.

I believe horses that have high action are more obnoxious to this affection than others. It is also more prevalent during the summer than the winter.

Symptoms.—Those which generally characterise this disease are excessive pain and irritation, quick febrile pulse, embarrassed respiration, and a throbbing of the plantar arteries proceeding to the feet, which are most affected. The fore feet are oftener the seat of this disease than the hinder ones, but, occasionally, we have all four diseased at the same time. They are very hot and dry; the animal evinces considerable pain on being compelled to move, and yet he is very restless, frequently taking a circuitous route from the place where he may be standing, and thus getting his legs entangled in the litter. Occasionally he lies down, and, when so, generally at full length. His bowels are mostly costive, and commonly he refuses all food, until the pain under which he labours is somewhat abated in consequence of the remedial measures we may have adopted.

Treatment.—It is advisable first to remove the shoes, thereby facilitating the application of our topical agents. If the horse is in a stalled stable, I should remove him into a loose box, and there allow him to have his full range. I should detract as much blood as he could bear to lose, and give a brisk purgative, combining with the aloes one or two drachms of calomel, in order to cause a more copious secretion from the stomach, small intestines, and liver. The administration of the purgative would, of course, be regulated by the degree of that costiveness which I believe is almost invariably a concomitant of this disease. Enemata would be found extremely useful. The animal should be kept on a low diet, consisting chiefly of bran-mashes.

Should the soles be thick, I would thin them with the drawing knife; apply fomentations of tepid water to the legs and feet, and emollient poultices to the latter, renewing them every twelve hours, and taking care to have them kept moist during the intermediate time, by frequently pouring warm water over them. When the acuteness of the inflammation is allayed, cold or evaporating lotions may be employed around the coronet; but should

the pulse keep up, and the inflammatory action be apparently not much diminished in the course of twenty-four hours from the first bleeding, &c., I should again have recourse to the lancet. Generally, however, if the disease is taken at its commencement, it will yield to the one copious bleeding and the other measures we have recommended. I consider it of essential importance to keep the bowels under the influence of laxative medicines, with which we may combine diuretics, &c.

Sometimes when the disease has been more than usually violent, and has existed for a long time, a partial separation of the sensitive from the insensitive lamellæ takes place, and a secretion of lymph between the two consequent upon the former being elongated and weakened. When this is detected, I should substitute astringent poultices: but if an extensive separation has taken place, a descent of the sole, or a casting of the hoof altogether, will probably ensue; therefore, if my patient survived, I should at any rate despair of ever restoring him to active service. So far, however, as my practical observation has gone, such effects do not often follow, provided the malady is treated judiciously at first, but there is a gradual restoration of the parts to their normal state.

If a descent of the sole should occur, the horse's working may be facilitated by the application of such a shoe as shall not bear or press upon it, taking care to have what is commonly termed plenty of cover; thereby protecting that part of the foot which is not destined in its natural state to receive much pressure, and is much less capable of bearing it under its present abnormal condition. A bar-shoe is preferable to the common shoe.

Sometimes this disease displays itself under a subacute form, occasioned by taking a horse up from grass, and placing him in a warm stable, and there allowing his feet to acquire a morbid heat, at the same time, perhaps, putting him on a more stimulating diet, &c. These act as predisposing or exciting causes to the production of subacute laminitis. This disease is evinced by preternatural heat of the feet; by frequently *pointing* with one foot and then with the other; by going *feelingly*, and often stumbling, and, if ridden in this state, commonly falling and breaking his knees. Various other causes may operate to produce this derangement in the vascularity of the foot, but I think they demand no particular comment here. The treatment of subacute laminitis would be nearly the same as that of the acute form of the disease—rest, bleeding, purgative medicine, poulticing the feet, keeping the animal on a low diet, &c.

I am, &c,

The President said, that when they reflected on the difficulties which the veterinary surgeon has to contend with, from the fact of his patients not possessing the power of speech, and being thereby enabled to explain to their medical attendants some, if not all, of the evils and pains under which they were labouring, it became evident that, in order for him, and particularly for the junior members of the profession, to understand the nature and the seat of any malady, it was necessary that the indications of disease should be most closely studied and perfectly understood. With that object in view, he would ask the author of the Essay whether there were any other symptoms, and what they were, besides those which he had stated. He perfectly agreed with the author so far as he went. These were the prevailing and most obvious symptoms; but he did not think that the author of the Essay had gone quite far enough. He would, therefore, ask Mr. Wallis, supposing he were requested to attend a horse labouring under this disease in the fore feet, what there should be in the symptoms to induce him to say that the laminae were the seat of the inflammatory action?

Mr. Wallis replied, that in addition to the symptoms he had mentioned, there was a peculiarity of gait. The animal would throw the greater part of his weight on the heels, and this action was, in fact, that which more distinctly than any other marked the character of the disease. This peculiarity of gait was sometimes never entirely got rid of, for there followed a degree of malformation of the hoof. The foot might be put flatly down, and yet there would be a singularity of gait. The question, why the fore feet were more commonly the seat of the malady than the hind, arose principally from the fore legs supporting more of the weight of the animal than the hinder ones, and therefore being more subject to concussion.

Mr. White wished to know why Mr. Wallis seemed to object, or rather not to advise local bleeding—bleeding from the toe?

Mr. Wallis replied, that there was already much inflammation in the foot, and it was his opinion that if he were to puncture it when in that state he should be likely to increase that inflammation.

Mr. White had often bled from the toe, eye, and more than once in the same foot, and with decided benefit. He had, of course, bled from the neck as well.

Mr. Wallis, in reply to questions from various members, stated, that a costive state of the bowels, while the horse laboured under laminitis, was that which would be naturally expected. The nervous energy was too much and too morbidly employed about the feet to carry on with energy the functions of the abdominal canal. To restore, in some measure, a more equable distribution of this energy, was, in fact, one of the most valuable offices of our cathartic medicines. He should have no objection to give opium in small doses. He imagined that the prevalent cause of laminitis was the severe exertion which was frequently exacted from the horse. After some little time, he usually substituted cold for warm poultices; indeed, he sometimes thought it advisable artificially to lower the temperature of the poultices and the water. He would not apply the frigid treatment so soon as forty-eight hours after he had been called in, although he might deem it prudent in three or four days. The animal was more disposed to lie down when the hinder feet were affected, than when the fore ones were the seat of disease.

Mr. Sibbald remarked, that in the cases which had fallen under his notice, where the attack was in the fore feet, he had never seen the patient lie down. He had, however, seen it when the attack was in all four legs. There was at first, in this disease, an increased flow of blood throughout the inflamed parts; but that soon ceased under the treatment applied. He had, in the first instance, bled from the toe; he had abstracted blood, and thus relieved the

overcharged vessels at once. If, however, ten or twelve hours had elapsed from the commencement of this determination of blood to the foot, he should not have done so, inasmuch as gangrene would be likely to ensue. In some cases he should bleed from the jugular vein, as well as from the feet.

As soon as the physic evinced any symptom of operating, he should not hesitate to give doses of spirit of nitrous ether and opium. The opium would not now produce a constipated state of the bowels. He would beg leave to ask what Mr. Wallis meant by the term "chronic laminitis."

Mr. Wallis meant laminitis of long standing, or laminitis in which the symptoms were not of an acute character. There were cases of laminitis in which there was no acute stage of attack, but there had been a certain degree of inflammation going on for a greater or less time. This, of course, was productive of tenderness in going, and yet the horse was capable of fair average work. The tenderness was particularly observable when the animal was first taken out of the stable. He had seen many cases of this disease in cart colts, when they had first come up to London, and were put to work. It was what he termed chronic laminitis which then came on. He had usually, after the operation of the blister had passed away, turned the patient out to pasture, and not put him to work.

Mr. Shorten, in reference to the statement that a horse was liable to laminitis from eating wheat, would observe that he had known many instances in which horses had had flour in considerable quantities thrown into their water, without any bad effects resulting. If, however, an attack of laminitis followed, they invariably found that there was great difficulty in producing a proper action of the bowels.

Mr. Sayer had never seen an instance in which laminitis had been the result of giving flour in water after hunting.

Mr. White had always found that the application of cold poultices had a tendency to subdue the inflammation much more rapidly and effectually than warm ones. In his part of the country, the exhibition of nitre, emetic tartar, and digitalis, had accompanied the poulticing. This treatment had been generally successful. The cold applications were generally used after the abstraction of blood from the toe.

Mr. Sibbald, in reply to a question from Mr. Wallis, said, that in some cases, where the inflammation had been in the hind feet, the horse did not lie down, unless gangrene had supervened. The other feet becoming affected, the poor patient was compelled to lie down. In such cases, however, he should sling the patient.

Mr. Wallis, in answer to a question, could not say that the horse recovering from laminitis would be more liable to future attack. If the parts were perfectly restored prior to the animal's being put to work, there would be no reason for fear about him.

Mr. Wills thought it highly necessary that they should be able to distinguish between acute and chronic laminitis. Would Mr. Wallis have the kindness to point out the difference in the symptoms or appearances?

The President asked Mr. Wallis if he thought "chronic laminitis" altogether a proper term, or that it was precisely applicable to the particular disease or state of disease he was anxious to describe. Did he not think the term ought rather to be "sub-acute," and not "chronic"?

Mr. Wallis bowed to the opinion of the President; "sub-acute" certainly was a better term.

The President asked, with regard to the term of "congestion," whether it was meant that, in cases of inflammation of the laminae, the blood did not flow so fast as in a state of health?

Mr. Sibbald thought it did not after the first few days.

The President agreed that they had congestion in all cases of inflammation; and, after death, they had all the vessels distended, as it were, with inflammatory blood. He had never met with an instance of this disease where the brachial vein had not been very much distended, and when, on opening it, there had not been a flow of blood more rapid than at other times.

Mr. Sibbald had ventured to suppose that in this disease the blood was prevented from flowing so quickly as usual from the plantar into the foot. He thought it might be obtained more readily from the jugular vein, rather than from any superficial source, as the brachial vein. They might certainly get as much from the latter, but he did not think that it would have a more immediate effect.

The President was quite ready to confess that, when he had bled in the brachial vein, it had not been from a conviction that it would afford more relief. He had done so, however, as they would imagine, for the sake of the pupils, and as a lesson of professional practice and tact. He agreed with *Mr. Sibbald* that, by bleeding from the brachial vein, they were not accomplishing their object—the subsidence of inflammation in the feet—to a greater or more beneficial extent than if they had withdrawn the blood by means of the jugular vein.

Mr. Wallis, in reply to questions from various members, said, that the blood in such a case was very likely to be congested. He should not employ venesection from the feet, but he might take blood from the brachial vein: at all events he should not take blood from the feet. He used commonly a poultice of linseed meal and bran. He had seen this disease arise from a horse getting into and feeding on long wheat—that food appearing to produce more local and general excitement than oats. He had never employed pressure: he had employed counter-irritants in the form of blisters on the coronets in cases of chronic laminitis. That treatment he considered to be very useful and beneficial. He should not, however, think of blistering while acute inflammation was going on.

The President remarked that, conversing with one of the oldest practitioners of the day, that gentleman had said he never had any difficulty in curing laminitis when the snow was on the ground. In bringing the debate of the present evening to a close, he would confine himself to a very few observations, and those of a general nature. Before the practitioner proceeded to the investigation of the causes, the symptoms, and the treatment of this disease, it was necessary that he should be well acquainted with the anatomy of the foot. The vascular structure of that organ was peculiarly a subject for his consideration, as well as the question whether the whole of its parts were or were not likely to be acted upon by every movement the horse made. Mechanical force or concussion had very much to do with the production and the continuance of this disease. He then entered upon a most interesting sketch of the formation and use of the different parts of the foot, and the various ways by which it might be acted upon or influenced; observing, that experience had led him to infer that there was a peculiar susceptibility in the foot of the horse to take on inflammation. With regard to the fact that had been stated, of wheat having a peculiar effect upon the

horse, he might be inclined to agree with some, in saying that constipation of the bowels was calculated to render other parts of the frame liable to disease, and especially the feet; there was yet, however, very much to be ascertained upon this subject.

JANUARY 19, 1841.

THE PRESIDENT in the Chair.

The Secretary read letters from Professor Ferguson, Robert Liston, Esq., Erasmus Wilson, Esq., and W. C. Spooner, Esq., of Southampton, acknowledging the honour conferred upon them by their election as Honorary Associates.

Letters were also read from most of the gentlemen who had been elected Corresponding Members.

The following Essay, by Mr. D. SAYER, was then read.

ON DYSENTERY IN SHEEP.

Gentlemen,—I am apprehensive of my ability to give a proper exposition of the subject which I have selected; but, as I consider it to be the duty of every member of this Association to contribute to the advancement of the object for which it was founded, so I trust you will not mistake the motives that have induced me to present these few remarks for your consideration.

The disease of which I am about to offer a short and probably imperfect account is one that deserves our most serious attention; and, having seen many valuable animals become victims to it, I feel desirous to learn more respecting it from older practitioners. In order to accomplish this, I feel that it is incumbent upon me to contribute the little I know, being assured that, in proportion as we impart to others the little knowledge we possess, will be the advantages we shall receive in return; at the same time I would wish it to be borne in mind, that I speak of this disease from a desire of information, rather than from an impression that I am enabled to throw any new light upon it.

I have friends in the country—agriculturists—who have suffered severely from it; but I am happy to see and to hear that the ability and assistance of the veterinary surgeon are fast

claiming the notice of agriculturists and proprietors of cattle, and I doubt not that their amicable association will be productive of each other's good. The boasted talents of empirics and pretenders of every description are on the wane: they have been weighed in the balance, and found wanting, and I hope the day will ere long arrive when we shall find the practice of veterinary medicine rolling into those channels that have already undergone the necessary change for its reception; for while the surgeon is engaged in administering healthsome aid to his fellow-men, the veterinary surgeon is employed in the more humble, but perhaps not less useful and laudable occupation of contributing to the well-being of the animals placed lower in the scale of creation than man. He that would steel his breast against the sufferings of the various creatures around him—creatures which so much contribute to his wants and comforts—is but half a philanthropist. In our philanthropy there may be gradations, but it can scarcely be said to have limits.

“ Friends, parents, neighbours, first it will embrace,
His country next, and next all human race.
Wide and more wide, th' o'erflowings of his mind
Take every creature in, of every kind.”

But to my subject:—

The valuable animal to which I wish to direct your attention is the SHEEP; and the malady, that formidable disease so common to him, termed DYSENTERY. It is known in the different counties of England by the names of “cling,” “braxy,” “flux,” &c.

Dysentery consists in inflammation, of a somewhat peculiar nature, of the mucous lining of the intestines, attended, in an early stage, by an increased quantity of the natural secretion, and, as the disease advances, of a morbid alteration of that secretion, as well as a frequent discharge of it.

It may also be a concomitant of other diseases; for instance, it is not unfrequently the destructive accompaniment of phthisis in the lower animals; while the human surgeon looks upon it as one of the very worst attendants upon pulmonary consumption in his patients. I have, likewise, frequently found chronic hoose degenerate into it. Its causes, however, may be commonly and clearly traced, exclusive of its origin in or connexion with other diseases.

Causes.—The animal may eat that which is unwholesome mingled with his food, or he may drink water that is insalubrious. Under accidental circumstances he may also lick, and swallow with his saliva, matters of a contaminating or morbid

nature, and by any of these means he may lay the foundation of dysentery.

Within the alimentary canal is elaborated the chyle. The chyle forms the blood, and the blood nourishes and repairs every part of the frame; while the formation of both of these depend upon the food. Different pastures have also different degrees of nutritive or unwholesome properties, arising not only from baneful plants that may be growing among the esculent herbage, but from the quality of the grass itself. I have frequently seen this disease produced when a flock has been driven from soft and succulent food to that which was dryer and harder. Then the manyplus, or third division of the stomach, which had been for a considerable time employed in pressing out the juice that is easily extracted, and comminuting that which gives little resistance, is all at once called upon to perform a severer duty, and we need not wonder if its energies soon become exhausted and paralyzed; and thus the food, being permitted to pass into the intestines without due comminution, its fibres are left, which keep up a continued irritation of the internal mucous lining. On the other hand, a sudden change from a dry and bare pasture to one that is covered with soft and succulent food will, in another way, produce the same effect.

A transition of situations will also undoubtedly lay the foundation of this disease.

After an animal has been habituated to a dry warm soil for a long period, and is then removed to a cold damp and exposed one, it is not surprising that the natural functions of the digestive organs become impaired, or the organs themselves debilitated and diseased. This may be satisfactorily explained in another way;—the body rendered irritable by the previous heat, which has freely opened the exhalent vessels of the skin, and being exposed suddenly to much cold and moisture, the blood is thereby thrown from the exterior vessels into the interior, and thus dysentery is engendered. In a similar manner we may account for its resulting from violent exertion, or suddenly checked perspiration. I may say with confidence that I have frequently witnessed the operation of this latter cause in the sheep; and I trust I shall not be considered as digressing from the ordinary rules of this Society if I relate a circumstance which fell under my notice a few years ago, for it has been said with much truth that sometimes a trifling circumstance, well marked and reasoned upon, establishes an important principle.

A flock of fat sheep that had been purchased by a farmer at a considerable distance from his home, were being driven to their new master, when they were overtaken by a very heavy storm,

accompanied by a cold piercing wind. The boys who were driving the poor animals of course took shelter, whilst the sheep were left shivering in the open air. About an hour afterwards, they were examined by their new owner, and, much to his surprise, he found them panting and foaming at the mouth. The next morning they appeared dull and languid, and had ceased to ruminate, and at noon, on the same day, half of the flock had, to use the language of my friend, "got the flux." Gruel and ginger were given them for several days, and they recovered; but I have no doubt, had the diarrhœa been allowed to have gone on, it would eventually have terminated in dysentery.

One other cause remains to be noticed, and that is very seldom taken into account,—it is, metastasis of fever, or rather its translation from the seat which it first occupied to the intestines. This I am induced to believe is a more frequent cause than is generally imagined. I need scarcely add, that another and very common cause of dysentery is neglected or maltreated diarrhœa.

Symptoms.—This being essentially an inflammatory disease, the general symptoms of fever will invariably be found. The animal appears dull, he lies down frequently, and rises again. After a short interval the conjunctival lining of the eyelids is injected, and the nostrils and mouth are hot and dry—the respiration is slightly disturbed, and the pulse quick and wiry—the wool is dryer than natural, and easily removed from the animal. The appearances, however, which point out the true nature and seat of the disease are to be found in the evacuations, which consist of blood and mucus, mixed with small and extremely hard portions of fæcal matter. These constitute the scybalæ spoken of by medical men who have written on this scourge of the human being. These scybalæ and other fæcal matters are voided frequently, and their smell is peculiarly offensive. As the disease advances, the fœtor increases; and at each evacuation the animal, by alternately holding up its hind legs, too plainly shews how painful the operation is to him. Debility quickly supervenes if the poor creature is not relieved; and he either lingers for weeks, a living skeleton, or the symptoms rapidly increase in violence, and their prevalence for a day or two is sufficient for his destruction.

From this account, it might be thought that no one could possibly mistake the disease; yet, strange to say, there are many individuals who confound it with diarrhœa, which is merely an increased flow of the natural secretions of the intestines, by which the egesta are rendered semifluid. They are readily distinguishable even by a common-place observer, if he will only exercise a moment's thought. I may also observe that, while diarrhœa

affects chiefly the small intestines, dysentery is principally confined to the colon and rectum.

Treatment.—Having removed the patient from what may be considered the cause of the malady, which is the first and most important thing to be done in all cases of disease and to all animals, the question that arises in the mind is, What is the veterinary surgeon to do next? The disease being, as I have stated, one of an inflammatory character, he will probably bleed in the first instance, and administer a dose of laxative medicine, than which nothing is more likely to prove of service. This must be followed by astringents and cordials—perhaps the combination of catechu, chalk, and ginger with opium—and these are to be persevered in even after the increased discharge has ceased, and only left off gradually and with great care, and, even at last, succeeded, if necessary, by tonics. The diet should consist of mashes, gruel, and a little hay.

In chronic cases, Mr. Youatt has recommended the use of strychnine in half-grain doses, but as I have never seen it employed in such cases, I cannot say any thing of its efficacy.

As it is a generally admitted fact that example is a better teacher than mere precept, I will here introduce a detailed account of the successful treatment of thirteen out of fifteen cases, by a veterinary surgeon with whom I had the gratification of attending.—In the November of 1838, a farmer in the county of Norfolk, who had lost several fat sheep by this disease, consulted the practitioner alluded to as to the nature and cause of the malady under which his flock was suffering. The symptoms previously stated being present, the disease was at once recognised by him.

The sheep were ordered to be removed from the turnip field in which they then were, and placed in a dry yard, when to each sheep was administered the following medicine,—

R. Ol. lini ʒij
Pulv. opii gr. ij
Infus. lini Oss.—Fiat haustus.

The infusion of linseed and gruel was given several times during the day, and their diet was made to consist of turnips, mashes, and hay.

On the following morning we found them all (with the exception of two) decidedly better. Their bowels had been gently acted upon, and the fæces had more the appearance of healthy evacuations. In the two cases that I have mentioned as exceptions, the unfavourable symptoms of the previous day were aggravated; and although the medicine was repeated, it was of no avail.

They died during the day. To each of the remainder was given the following draught :

R Pulv. opii, gr. ij
Pulv. zingib. et gentianæ āā 3ss
Infus. lini Oss.

This was ordered to be given twice daily.

When we again saw them, which was on the next day, their bowels were still in a gently relaxed state, but the fæces were acquiring their natural colour—the eyes were less suffused—the appetite increased—and the animals appeared more lively. We administered

Ol. lini 3ss
Pulv. opii gr. ij
Pulv. zingib. et gent. āā 3ss in gruel.

This treatment was continued for four days, when they were apparently perfectly recovered, and delivered over to the care of the owner, who very prudently permitted them to return by slow degrees to their former diet.

The death of our patients, although rarely desired, often gives to us an opportunity of investigating the seat of the disease under which they were labouring, and, at the same time, affords us more or less insight into its nature. The dissection and examination of diseased parts frequently supply us with information of a highly valuable description, and in this respect the veterinary surgeon possesses an advantage over the human surgeon: it is therefore his duty to avail himself of it. It occasionally happens that animals die, the dissection of whose bodies disclose no perceptible trace of organic lesion; but it much oftener happens that more disease is found to have existed, on post-mortem examination, than was anticipated during life; a circumstance that forms an additional reason for its habitual performance.

Post-mortem Appearances.—The following changes were found to have taken place in the bodies of these two sheep. The viscera of the thoracic cavity presented their natural appearance. In the third division of the stomach were found portions of dry and hard ingesta. The mucous surface of the duodenum and ileum exhibited slight patches of inflammation. In the colon and rectum were considerable traces of inflammatory action, in some parts approaching to a state of gangrene, the smell emitted by which was very offensive. In both, the latter gut contained several small masses of hardened fæces. The peritoneum did not present any indications of its being implicated in the malady. A portion of the liver, in one animal, was in a state of *ramollissement*; in the other this viscus was perfectly healthy. The kidneys in either case did not shew any visible marks of disease.

Mr. Sayer, in reply to questions from Messrs. Donaldson, Bland, and Twinberrow, said that the pulse in these cases usually ranged between 80 and 90. The temporal artery was the best place to ascertain the state of the pulse in the sheep. He had known this disease to be produced by a change from a moist succulent pasturage to one of a dry character. When sheep were taken from grass to dry land they were very likely to suffer from an attack of this malady. If they were put on corn the probable effect of this change of food was to impair the function of the digestive organs. Most of the cases he had seen had been in fat sheep. He had observed the disease commonly to attack sheep of from one to two years old. He had not noticed it in calves nor in lambs; although he had seen them have diarrhœa, which did not go on to dysentery. In simple diarrhœa the evacuations were un-mixed with blood and mucus; and it was not usually accompanied with much fever; but in dysentery the fever was generally a characteristic. He did not think that the liver was usually involved; neither did he conceive that the biliary secretions were affected. The mucous membranes were very seldom tinged yellow in the cases he had seen. He considered chalk to be an indirect astringent; and as a proof that it was beneficial in its influence, he believed that on chalky soil this disease very seldom made its appearance among sheep.

Mr. Williams said that his farms were certainly not upon the chalk, although they were near to it. He was from seven to eight miles from the chalk, and therefore he had not had an opportunity of ascertaining its effects on sheep. His practice was to send his lambs into the meadows in the summer time. As his sheep were principally of the South Down breed, they kept his land very poor, and almost in a state of short commons. During the period the sheep were down in the meadows they thrived very well; and in his part of the country it was considered that such a result was attributable to the softness of the water. When the sheep were brought to the upper lands there was a great difference in the character of the water; it being distinguished for its hardness. And yet that circumstance did not account for the disease, inasmuch as it was their custom to stop up the way to the water, so as to prevent the sheep from getting to it; still, and notwithstanding such precaution, the sheep were attacked by this disease.

In the course of two days after the removal of lambs to these high lands they were frequently attacked. They were then sent back to the meadow lands, by which they were generally cured, although the pasture there was almost as bare as a turnpike road. The animals were allowed to remain in the meadows about fourteen days, at the expiration of which period they were restored to health. The coming back again to the high lands, however, for only two or three days would oftentimes bring on another attack. This second attack was seldom so severe as the first. The medicinal agents had recourse to by him consisted of linseed or castor oil, combined with a small quantity of chalk. In the first instance he believed it to be diarrhœa, from the nature of the evacuations, which were not bloody, but profuse, and mixed with a considerable quantity of mucus. Old sheep would do very well on the high lands, and were seldom or never attacked by the disease. It was confined to the lambs while sucking the ewes.

Mr. Bland had observed an attack of this disease on sheep in a clover pasture. He had given with benefit sedatives combined with astringents. A change from succulent food to a dry pasture was very likely to be the means of producing this disease. He had seen this disease attack sheep when feeding on turnips in the winter months. The part of the country whence he came was a low strong land, where the herbage was rank. He believed that rock salt was, to a certain extent, if not entirely, a preventive of this disease.

Mr. Sayer asked *Mr. Williams* whether the water of which he had spoken as being on his upper-land farm was stagnant or otherwise?

Mr. Williams replied, that it was not stagnant—it was a spring that ran through a quicksand, and there was a great deal of sand in it. The disease, however, could not be attributed to the sheep drinking it, because, as he had already stated, they were prevented from coming near it.

The President said that *Mr. Williams*, an extensive agriculturist, had most kindly come forward and favoured them with the result of the observations which he had made as to the nature of this disease; and from the experience of that gentleman it would appear that the affection in his flock had been confined to the young animals. Now, the author of the Essay has stated that he had seen and had heard of its attacking adult animals. He should be very glad, and, indeed, it would be highly satisfactory to the members, if there were any other gentlemen who, being connected with agriculture previous to their entrance here as students, would oblige them by stating what their experience had been with regard to this point. It was by such statements as these that they obtained solid and useful information.

Mr. Twinberrow had seen this disease occur both in the young and the old animal, but more frequently in the former. In the lambs diarrhœa would be set up, and go on to dysentery, of which they died. He had seen it in old sheep, and it had been followed by the rot. He had also known cases where diarrhœa had come on in cattle put up to fatten.

The Secretary said that *Mr. Litt* had just communicated to him a fact which appeared worthy of being made known to the members of the Association, inasmuch as it afforded another proof of the advantages that would result from botany being made a part of the education of the student of veterinary medicine: it might also be the means of eliciting from others similar facts, while it shewed us how Nature has provided, not only for the wants, but also for the diseases of animals. By an observance of the means resorted to by them when diseased, we might sometimes be taught a useful lesson. Some of the more active agents of the *materia medica* have been introduced from their known influence upon the lower animals.

Mr. Litt had told him, that on the mountains of Cumberland a plant is met with to which the vulgar give the name of “*Tormentor*.” Now this is the common tormentil, or septfoil; and when sheep are affected with diarrhœa, or even dysentery, the farmers turn them into a field where this plant grows, and from eating it they experience much relief. It acts powerfully as an astringent, its active principle being tannin, which it contains in somewhat large quantities; for even on chewing a leaf its existence is detected. The root, however, is more powerful, and it has been substituted for oak bark in tanning. It has also been said that the formation of leather is more quickly brought about by it than by the oak bark.

Now, although this plant is indigenous to Great Britain, yet it may not be found in all countries, nor met with at all times; but, as in other substances, the same principle exists; Nature

has thus pointed out a mode of cure. In the gall-nut, or the oak bark, and particularly the former, tannin abounds. Either of these, then, he considered might be advantageously had recourse to as an astringent, after the *prima viæ* had been cleared by a laxative, as recommended by the author of the Essay; a preliminary act he would always advise.

He believed that he had had occasion before to refer to the action of pure tannin upon the alimentary canal. By it, its coats are corrugated and rendered dense, and the secretions stayed; and, indeed, they have been made to resemble imperfectly-formed leather.

The President.—Doubtless the origin of many maladies may be traced to the alimentary canal and the ingesta, whence result derangement in function of the digestive apparatus. This is not at all surprising, if we only cursorily observe the complicated structure of the stomach and its appendages in the ruminantia; but they who had made such things their study in their physiological researches, had, he doubted not, been often struck with the beauty and order, and the abundant proofs of wisdom and design, there to be met with. It has been thought, that when we have similarity of structure, we may fairly anticipate similarity of function; and from this has been deduced the inference, that medicinal agents, under such circumstances, will be productive of similar effects. As a general law this may, perhaps, be allowed; but there are many modifying circumstances to be taken into account.

If they were to investigate the mode of action of purgative agents, they would find that some affected one part of the intestinal tube and others another. So, if he were asked why the kidneys were acted upon by certain medicaments and not by others, it was not in his power to tell them. He could not say why the disease under consideration was one to which the larger portion of the intestinal tube was more liable than the smaller; but such was the case. This, however, must be apparent to every thinking mind, that very much would depend on the degree of susceptibility, and the structure of the organs. If, for instance, they were to inoculate a horse with the matter of glanders, they might produce farcy; but it would depend greatly on the particular state of the animal whether they produced, by that inoculation, a disease of the skin or of the mucous membranes. Their friend, the Secretary, had suggested to him that the fact of the larger portion of the intestinal tube acting the part of a second stomach in our patients might account, to a certain extent, for this disease shewing itself there, and not in the smaller intestines. There could be no doubt that the various organs of

the animal frame were more or less susceptible of being acted upon by different agents, and that the same effect was not produced in all cases, even upon the same organ. It was, nevertheless, extremely difficult to say why this should be the case. It certainly would appear, that this peculiar disease was referrible more particularly to the change of diet than to any thing else.

The Meeting then adjourned.

TUESDAY, JANUARY 26, 1841.

Mr. LITT, V.P., in the Chair.

Mr. Walker and Mr. Bond were elected Members of the Association.

The Secretary announced that Professor Rigot, of the Veterinary School of Alfort, had presented to the Library of the Association Part I of his "*Traité Complet de l'Anatomie des Animaux Domestiques.*"

The following Thesis, by Mr. THOMAS GREAVES, was then read :—

ON INDIGESTION IN THE HORSE.

Gentlemen,—In introducing an Essay for your consideration this evening I must confess that I feel a degree of diffidence, being fully aware of my incompetency to do justice to a subject generally admitted to be one of the greatest importance, as it respects the well-being and economy of the animal frame. Perhaps I may be censured by some, and by others considered presumptuous, for undertaking so arduous a task; and, indeed, I have only to offer in excuse for my temerity the stimulus of that spirit of emulation which is ever the greatest incentive to industry, and which, happily for the veterinary art, is now fully roused. I have been encouraged, also, by the efforts of other veterinary aspirants, by whose endeavours I believe the profession to have been somewhat benefitted. I allude to those useful members of this Association who have, from time to time, by their zeal and unwearyed assiduity, not only increased the stores of veterinary science, but also disenthralled her from the chains of ignorance and prejudice with which she had been so long bound; and, by placing her upon a firmer basis, have en-

abled her, from this advantageous position, to wield the weapons of her art with all but actual certainty and unerring precision.

I rejoice to know that so many of the errors of the older practitioners have been brought to light, and are now almost extirpated. But by whom has this "consummation devoutly to be wished" been in a great measure brought about? I unhesitatingly answer, by the combined and unanimous efforts of the members of this Association—individuals so well calculated, not only by their standing in society, to uphold and support the respectability and usefulness of our profession, but also, by their education, to add considerably to its importance.

Before I enter upon my subject, I will offer some preliminary remarks on healthy digestion.

If we judge of the importance of a function by the number, variety, and complication of the organs operating in its performance, certainly digestion ought to be placed in the first rank. For the sake of conciseness of description, let us commence with the food taken into the mouth. Here it is brought under the influence of the masticatory organs, and then becomes commixed with the saliva and mucous secretions abounding there, which convert it into a bolus easily to be swallowed, and in part fitted for assimilation. It is then, by the action of the tongue, propelled through the fauces into the pharynx and œsophageal tube; when, by the combined contractions of the muscular tunic of that organ, it is forced into the cardiac portion of the stomach, where it is mixed with a quantity of mucus, which prepares it to be acted upon by the gastric juice in the pyloric portion of this important organ. This secretion, assisted in its solvent powers by the natural heat and gentle pressure of the stomach, quickly dissolves the digestible parts of the aliment, and, entering into union with them, produces a new mixture, denominated chyme, which, by a kind of peristaltic motion, is conveyed through the pyloric orifice of the stomach into the duodenum, and there becomes mixed with the pancreatic, biliary, and intestinal secretions, and, by their combined actions, is separated into two parts—a milky fluid called chyle, and an excrementitious mass. This process is effected, it is supposed, by the alkaline and saline ingredients of the bile and pancreatic juice uniting with the more nutritive portions of the chyme, thus constituting chyle, while the resinous matter passes off with the excrementitious portion or fæces. The chyle then attaches itself to the folds formed by the mucous lining of the intestines (in the human subject called *valvulæ conniventes*), and, by a power of selection, is absorbed by the first class of lacteals, called the *vasa enferentia*, which convey it into

the mesenteric glands, where it is acted upon by the *succus proprius glandularum*, and undergoes animalization. It is then taken up by the *vasa efferentia*, which conveys it to the *receptaculum chyli*, where it meets with the lymph carried there by the lymphatic absorbents, whence the thoracic duct conveys it into the circulation, where it is converted into blood—that fluid which is indispensable for the nourishment, reparation, and growth of the animal frame. But how chyle, which is white, resembling milk, becomes red blood, or how blood is afterwards, by the process called assimilation, converted into muscle, bone, tendon, ligament, and every other tissue or component part of an animal body, are points which must be referred to those phenomena that are placed infinitely beyond the ken of human sagacity to reach or to explain.

It is true, that the penetrating mind, aided by the patient and persevering investigations of some of our profoundest and most enlightened physiologists, stops not even here, but raises the superstructure of many very ingenious and beautiful theories and speculations, unravelling this all-mysterious subject to its minutest ramification, or as far, at least, as the human mind can conceive or bring to bear with common sense. “We may imagine,” says Dr. Young, “that at the subdivision of a minute artery a nervous filament pierces it on one side, and affords a pole positively electrical, and another opposite filament a negative one. Then the particles of oxygen and nitrogen contained in the blood, being most attracted by the positive point, tend towards the branch which is nearest to it; while those of hydrogen and carbon take the opposite channel.” Thus it will be perceived that there is a power of self-adjustment, and nutrition and repair are effected from the blood.

Before taking leave of this part of my subject, I would remark, that it is the opinion of many physiologists that a considerable degree of absorption is also continually going on from the intestinal tube by means of the venous system, and that the chyle thus taken up undergoes the necessary change in the liver, and is, at the same time, made subservient to other important functions in the animal economy; thus affording another instance of the beauty and precision with which all the operations of nature are conducted, and, surely, not the less striking because they are beyond the limited faculties of man thoroughly to explain.

From what has been said, it must be evident that, to ensure perfect and healthy digestion, it is essential, nay, absolutely necessary, that each process should be completely and perfectly performed. Perfect mastication and insalivation are indispensably requisite to reduce the food to a proper consistence to be

acted upon by the gastric juice in the stomach, where it undergoes the change called chymification. Here, again, is an important office, and one more especially essential to health than, perhaps, any other function in the animal economy. "This," says Dr. John Hunter, "is the root of man, and, if you want to eradicate any evil, you must look to the root of it—look to the digestive organs for the origin and constant provocation of all diseases." Dr. Paris, in his *Pharmacologia*, has so ably described this, that I cannot omit it here: he states, "That an impression made upon the stomach by a medicinal agent should be the means of exciting an action in the distant parts of the machine, will not appear extraordinary, when we consider how universal a sympathy and controul this central organ exercises over every function of the body; imbued with exquisite and diversified sensibilities, subjected to the first and coarsest impressions of our various ingesta, stretched occasionally to an enormous extent by the unrestricted indulgence of appetite,—disturbed by passions,—exhausted by volition, and debilitated by intense thinking; in short, assailed by numerous foes from without, and harassed by various revolutions from within, can we feel surprised that the aberrations of this viscus should give origin to the greater number of maladies with which we are affected?"

The stomach of the horse being, like all other organs, subject to be acted upon, either beneficially or otherwise, by certain modifying agents, we find that, for the well-being of the animal, his food should be of a definite quantity, the best in quality, and given at regular intervals. His exercise, also, should be regular, or as nearly so as possible, combined with ease and quietness, and a uniform temperature of the body for a certain time after each meal. These circumstances, unimportant as they may appear to many, should be strictly attended to; for then the gastric juice will become thoroughly commixed with every particle of food, by the successive contractions of each part of the stomach producing a series of folds and wrinkles, and these serving to agitate the mass, and bring every portion, in its turn, to the surface, there to be exposed to the influence of the solvent.

By these means a healthy state of digestion will be insured, while any deviation from them will interfere, more or less, with every organized tissue in the body; and although such deviations may seem simple and of no moment, yet they will, sooner or later, alarm the owner by the appearance of, perhaps, a series of complicated and deep-rooted diseases, undermining the natural function of every vital organ. It is true, the young and

vigorous horse may digest the most unwholesome food for a time; but even in him its effects will soon become apparent. How much readier, then, will the horse become a victim to it, that has been previously debilitated by age and hard usage, and is, perhaps, labouring under the effects of the ravages of some previously existing disease!

I am thus brought to the more immediate subject of my Essay, INDIGESTION. This may be considered under two heads—chronic and acute. The symptoms of chronic indigestion are,—the animal is hide-bound; he has an unthrifty appearance and a staring coat, and is what is commonly called a delicate feeder. Occasionally, also, it is indicated by a depraved appetite, loss of condition, a coarse and undigested state of the fæces, and general weakness, which comes on gradually. At length debility and extreme emaciation become more and more evident, until death closes the scene. The patient will live as long as the body contains the least portion of fat that can be absorbed for its support; but this is only an effect of secondary consequences. It frequently terminates in Acute Indigestion, and this is the division to which I wish more especially to confine myself.

Predisposing Causes of Acute Indigestion.—The principal predisposing cause of acute indigestion consists in a congested state of the vessels of the mucous membrane of the stomach and intestines; consequently, there is the want of the proper secretions, and constipation of the bowels is the result. This comes on gradually, and may continue for a length of time; but it is only waiting, as it were, for an exciting cause to bring on either inflammation, acute indigestion, or spasms. This torpid or abnormal state may be produced by many causes,—such as irregularity in the quantity and quality of the food; food unmasticated in consequence of diseased teeth; long and repeated deprivations of food and water; cribbiting, bots, quidding, previous attacks of acute indigestion producing diseased action and diminished energy of the organ; constitutional or hereditary predisposition; irregular exercise and temperature, diseased liver, &c. &c.

Exciting Causes of Acute Indigestion.—The principal exciting causes are as follow:—The animal has been allowed to eat, after long fasting, a large quantity of food, so as to overdistend his stomach (wheat, or green food, is most likely to produce this effect, especially if he has been harassed in work immediately after eating), by which the normal function of the stomach has been suspended, thus rendering it incapable of getting rid of its contents; so that, after repeated and continued efforts, it becomes tired, and the powers of contraction and dilatation are paralyzed. But the mischief does not end with the mere suspension of the

powers of the stomach; for food, if it be not digested, cannot remain long exposed to the heat and moisture of that organ, without undergoing some chemical change unfitting it for digestion. Then that mysterious phenomenon—that most beautiful chain of harmony in function which exists between all the organs in the body is broken, and, if not restored, death speedily closes the painful scene.

The state of the atmosphere has a great influence in bringing about this disease; thus it is found to be more prevalent at one time than at another, even at different periods of the same month. A dense moist atmosphere, assisted by a long wet coat, being a good conductor of heat and electricity, will rob the animal of his usual spirits and energy. Languor and a peculiar susceptibility supervene; the stomach, previously weakened by some predisposing cause, readily becomes excited; and, occasionally, the slightest error in feeding becomes productive of this dangerous disease, which at times proves fatal. It is true that the atmosphere, saturated with moisture, is quite sufficient, without the aid of a long coat, as it is incapable of carrying off the insensible cutaneous perspiration which is condensed upon the surface as it is formed, thus preventing that cooling and salutary process of evaporation, or exhalation, which is at all times so desirable. The bronchial exhalation from the lungs is also diminished under such circumstances. So, whenever a feverish state of the system is induced, whether by obstructed perspiration, undue excitement from improper or unusual food in the stomach, or by depressing or disturbing the nervous system, the function of the villous coat of the stomach and intestines is interfered with, and its usual secretion becomes vitiated, and at times is entirely suspended. That which is secreted often becomes highly deleterious, and thus, for want of that bland and natural secretion, the vascular and nervous papillæ are left, as it were, exposed to undue irritation, which rapidly runs on to inflammation of a serious and dangerous nature. Undue or inordinate exertion is likewise frequently an exciting cause.

Although the muscular coat of the stomach and intestines belongs to the class of involuntary muscles, and the nerves supplying them to the class of the respiratory-motor system, yet, by means of the sympathetic nerve, they have an intimate connexion with the nerves of voluntary motion; and there is consequently a very strong sympathy kept up between them. Thus, when the voluntary muscles are inordinately exerted, the action of the involuntary ones is unusually excited: there is an increased flow of blood to the stomach and intestines, followed by distention of the vessels; and, if any pre-existing or preparatory cause is

lurking in that organ, congestion and inflammation rapidly ensue. The delicate mucous membrane swells, thus closing the mouths of the exhalents, and congestion is established, while indigestion and constipation are the natural results. Thus it is that we invariably find constipation of the bowels protracting and aggravating the inflammation, and *vice versâ*. Ultimately the peristaltic or vermicular motion is suspended, owing to exhaustion or loss of power in the muscular coat; the acute sensitiveness of the villous coat becomes destroyed, and the disease terminates in gangrene, betokened by gradual quietude succeeding intensity of pain, which is, in fact, the harbinger of death, but very frequently mistaken by the inexperienced for the commencement of recovery.

Symptoms of Acute Indigestion.—Acute indigestion may or may not be attended with a symptomatic affection of the brain, producing stupor or staggers, as I have seen innumerable cases where this was not present, although the stomach was distended to the utmost. The horse is generally attacked in the midst of his work, becomes uneasy, and will lie down, and at times at full length, for a considerable period; the pulse varies from 50 to 60, and is not very full—the extremities are cold—the visible mucous membranes are not much injected—the bowels are constipated—the abdomen may or may not be much swollen and tense—gaseous eructations take place from the stomach—the mouth is dry and clammy, and a peculiar haggard countenance is observed, which becomes more and more ghastly as the disease advances. These symptoms may be succeeded by more violent ones, and the disease will run its course in a few hours, or the animal may linger in this state for many days, and, if not relieved, it will ultimately terminate fatally.

He will continue to lie down and get up again, will stand a few minutes, then walk round and lie down again, groaning as he does so; but the pains are not so acute as they are in colic or in enteritis. As the disease advances, his pulse becomes quicker, harder, and smaller, and the pains are more and more violent; yet he still lies down carefully—he perspires—falters in his steps—looks occasionally at his sides—reels and staggers. His mouth is open, and his nostrils expanded to the utmost. As the pains become more intense, he dashes himself about in extreme violence, plunges in every direction—wheels round and round, and often falls backwards with extreme violence as if in the pangs of death. If a rupture of the stomach has taken place, the animal now makes violent efforts to vomit, and the other symptoms too plainly bespeak that conflicting and exhausted nature can no longer stand

up against so determined an adversary, and the poor animal, staggering, falls to rise no more.

Treatment of Indigestion.—For the best mode of counteracting the predisposing causes, I would refer to the former part of my Essay, where I speak of the function of digestion. I would give also small doses of aloes, or calomel and opium, combined with mild tonics. “How much,” says Mr. Percivall, “do a few well-timed doses of laxative medicine contribute to restore the condition of a poor horse! How influential soiling is in producing a thriving diathesis, and promoting fatness, and sleekness, and every other appearance indicative of robust health; and yet these ameliorated states, probably, were not preceded by any signs whatever of disorder or disease.”

In the treatment of *acute* indigestion, I would bleed more or less copiously, according to the symptoms present; but this must be left entirely to the judgment of the practitioner, who will be governed by many circumstances. I would then give a large dose of aloes in solution—the quantity, of course, must be regulated by the size of the patient, stage of the disease, and constitution of the animal—combined with the tincture of opium, and the spirit of nitric ether, of each $\mathfrak{z}\text{i}$. I also throw up clysters, and employ hand-rubbing. If the pains continued, I would repeat the draught in half an hour or an hour, according to the urgency of the symptoms, perhaps withholding a portion of the aloes. If any swelling appeared, I would combine with the other medicaments an ounce of the aromatic spirit of ammonia, and also abstract more blood. If no relief was afforded in two hours or two hours and a half, I would again give half the above draught, with a quart of linseed oil, and an ounce of sulphuric ether, which I would not hesitate to administer every two or three hours should the case require it, and bleed again and again if the pains continued and the pulse would admit it. I have known instances where two ounces, three ounces, and even four ounces of aloes, combined with large doses of the above agents, were administered to large cart-horses in the course of a few hours; to which promptness of treatment we could alone ascribe our success, although it has been some days before purgative action has been set up. I am aware that there is a mode of treatment—giving compounds of ammonia in the first stage of tympanitis when the saccharine fermentation evolves carbonic acid gas, and compounds of chlorine in the latter stages, where the putrefactive fermentation evolves sulphuretted hydrogen gas, and which compounds are decomposed and rendered inert by these medicines. I have used them with benefit, and they are in strict accordance with scientific prin-

ciples. It is to the treatment of this disease that I wish more particularly to call your attention, and respectfully solicit each of you to give the result of your practical experience, unbiassed by the multifarious theories and opinions of others.

Gentlemen, I have done. I have purposely omitted a lengthened anatomical description of the anatomy of the parts involved, having already far outstepped the boundary I had set myself. I would add, that the above description has not emanated from a hasty and premature conjecture, but is the result of a series of attentive observations imbibed from practical demonstration, and which views have been cultivated by one of the most intelligent practitioners, I mean Mr. Greaves, of Manchester. I would also add, that I have felt somewhat disappointed, when perusing many able works, such as those of Peal, Spallanzani, Magendie, Count Rumford, Blaine, Percivall, Youatt, Clark, and many others, that a subject so full of extremely interesting matter to the practitioner should have been so little improved upon by modern veterinarians; and I again repeat, that I very much regret its introduction has not fallen into abler hands than mine to have done justice to it.

I remain, &c.

Mr. Simonds said, that probably before they entered upon the consideration of the paper they had just heard read, they would pardon him if he offered a few remarks on a certain medicament he had been lately using. It was the *Aromatic Spirit of Ammonia*. As several opportunities had presented themselves for testing its influence, he could now speak with something like confidence of its beneficial effects when given to cattle.

On a former occasion, and in a discussion on this subject, he had said, that we wanted a medicinal agent, which, while it would prevent the disengagement of gas from the contents of the stomach while undergoing fermentation, would also cause their condensation, and at the same time stimulate that viscus into action, so that its powers of digestion might not be interfered with; for it is well known, that if an abundance of gaseous matter is eliminated from the chemical action in the stomach overcoming the vital, the result must be indigestion. In the cases adverted to, he had given the aromatic spirit of ammonia as an agent by which he anticipated not only a perfect removal of the gas, but the other desired objects. The dose was from two to four ounces, largely diluted with water.

At the time when this has been administered, the rumen has been very much distended, and the respiration greatly interfered with by the pressure of the diaphragm on the lungs, arising from

inflation of the stomach ; but as soon as this agent began to act upon the ingesta, a stoppage was put to more gas being evolved, and all the other unfavourable symptoms disappeared. It, therefore, appeared to him, that a twofold benefit was obtained by the use of this therapeutic ; 1st, the vegetable matter was prevented from running into the putrefactive stage of fermentation, when it is well known that the compounds of hydrogen are disengaged ; and, 2dly, a gentle stimulating influence was imparted to the stomach, by which the power it had lost by distention was restored.

For a knowledge of this agent he was indebted to their excellent friend Mr. Morton ; and he thought it but right that he should give the Association, and especially those who were present, the benefit he had derived from the judgment of that gentleman, as well as the result of his own practical experience of its usefulness.

The Secretary could not refrain from expressing his obligations to Mr. Simonds for having so readily put to the test of experiment any views he might entertain respecting the action of certain medicaments. Situated as he was, he felt it to be his duty to communicate all he knew to the profession ; and he at once confessed, that he never intended to keep a secret connected with medicine. This, he was aware, had deterred some from communicating to him facts of value ; yet he would not, for the hope of a little personal gain, deviate from what he conceived to be a right course. Others had as liberally informed him of agents they successfully employed, and thus he was made their debtor.

He could, however, take no credit for the introduction of the present one, as it had been long known, although it was not, perhaps, generally employed. Indeed, in the Essay just read by him, Mr. Greaves had advocated its use. Its *modus operandi* could easily be explained ; but, to do so clearly, it would be necessary to pass in review the changes which the food of our patients, when labouring under disease, is likely to undergo.

During healthy digestion but little gaseous matter is evolved, if any, the powers of life preventing it. This is only the result of some derangement in function, when the vital principle is no longer able to prevent the elements of which the vegetable matter is constituted passing into those changes, known by the term fermentation. Now it must be acknowledged, that in the stomach exist all the pre-requisites to these changes,—namely, heat and moisture. Were it not, then, for the vital principle controlling chemical action, we should at all times, and under all circumstances, have much gas eliminated ; the consequences of which he need not stop to point out.

When the stomach has been debilitated by disease, or when,

by sympathy with other parts, its function is impaired, the food, instead of being digested, undergoes fermentation. The stages of this process are three. The first is designated the *vinous*; during it, carbonic acid gas is given off, and an alcoholic solution formed: the second is called the *acetous*, when acetic acid is generated: and the third, the *putrefactive*, when several foetid gases are evolved. Now it is only in the first of these that the compounds of ammonia can be expected to be of any avail, and he certainly was not acquainted with one to which he would give the preference to that used at his recommendation by Mr. Simonds; for, in addition to the neutralization of the carbonic acid by the ammonia, there is the stimulating influence imparted to the stomach by the alcohol and the essential oils with which the ammonia is in combination. In the latter stages of indigestion, however, when the compounds of hydrogen are liberated, little, if any, good will result from its employment: then it is that the compounds of chlorine, as chlorinated lime or soda, are to be had recourse to, and their action is easily explained by a reference to chemical laws. They depend upon this principle,—the great affinity which chlorine has for hydrogen; so that, when any of its gaseous compounds are brought into contact with it, they are immediately decomposed, the chlorine and the hydrogen uniting, while the bases are set free.

He thought that in these few observations, unexpectedly made by him, he had shewn the advantages that result from an application of chemical science to explain the operation of certain of our medicinal agents. The effect of all, however, cannot thus be accounted for, since the action of some depends upon vital laws; and whenever these are attempted to be accounted independent of that inscrutable essence denominated life, the chemist, in his humble opinion, has signally failed.

Mr. Greaves would ask Mr. Simonds if he had ever given the aromatic spirit of ammonia to the horse in cases of distention of the stomach?

Mr. Simonds had never given it in such cases. The agents he had hitherto employed were the water of ammonia with the tincture of ginger; and if he had found that the desired effect had not been obtained by these, he had recourse to the oxymuriate, or, as it is now called, the chlorate of potash, giving it in doses of one drachm or a drachm and a half. This he had generally, if not invariably, found to be effectual. The reason why he had considered it desirable to employ the aromatic spirit of ammonia was, that, in addition to its influence upon the food, or rather the matters disengaged from the food, it also acted on the stomach as a stimulant, and that to such an extent as he considered desirable in this complaint.

Mr. Greaves thought that, with regard to the administration of aloes in this complaint, it was impossible to lay down any definite rule as to the precise quantity to be given. In general cases he should give a large dose. Where the stomach was very much affected, he should not hesitate to administer as much as an ounce.

In reply to a question by Mr. Twinberrow on the value of linseed oil as a purgative, he begged to say that in the first instance he should give aloes, and after that he should have recourse to linseed oil. He had seen one or two cases in which indigestion has been produced by the presence of bots, and where, too, there has been rupture of the stomach. In one case that viscus had undergone ulceration, and appeared as if it had been eaten through. It was in fact, in such a state at the period of examination that it was impossible to tell whether ulceration or the bots had been the cause of rupture of the stomach, although the examination had taken place the morning after death.

Mr. Bland had never seen the stomach, soon after death, in such a state; but he had seen cases in which the bots had apparently eaten through the coats of the stomach.

The Chairman observed that the bot was generally found adherent to the cuticular coat of the stomach. It had probably the effect of exciting to a greater or less degree both the cuticular and the mucous membranes. He had likewise seen the bot adhering to the villous coat of the duodenum.

Mr. Greaves, in reply to various questions, said that he had met with several cases of ruptured stomach from indigestion. The horse, at the time of the rupture taking place, appeared to suffer little pain, and death usually ensued very soon after, although there were exceptions to this. In one case death had ensued in half an hour. In another case he had found as much as fifty pounds weight of food in the stomach. The bots here had weakened the parietes of the stomach, but they had not been the cause of the rupture; this had been produced by an over-distention of the stomach.

Mr. White.—*Mr. Greaves* has stated that in chronic indigestion the animal does not feed well. Now he had seen many cases where the horses had fed voraciously. The food, however, appeared not to do them any good, for they did not acquire flesh, and the excretions were unhealthy.

Mr. Sansom asked whether bleeding was really prejudicial, as had been affirmed in cases of indigestion. He had found it to be very beneficial.

Mr. Bland had never bled in the cases that had fallen under his notice.

Mr. Fryer observed that in cases of chronic indigestion he should limit the horse to a certain quantity of food, and that of a nutritious character. He had generally found that by the administration of carbonate of ammonia much good had been effected. Stimulants were far more useful here than laxatives. Crib-biting was either a consequence or a cause of this disease.

Mr. Greaves had considered crib-biting as one of the predisposing causes of indigestion. He had seen instances where it had impaired the health of the strongest horse. The crib-biter was generally liable to attacks of colic.

Mr. Twinberrow had seen horses in the finest condition, although inveterate crib-biters: he considered that habit to be an effect of indigestion as well as a predisposing cause of it.

Mr. Bland remarked that it was the opinion of most, if not of all practitioners who had closely examined the animal after death, that crib-biting has tended to weaken the organs of digestion, and therefore to dispose to the disease which was the subject of this discussion.

TUESDAY, FEBRUARY 2, 1841.

Mr. NORMAN, V.P., in the Chair.

Messrs. Bateman and Evans, Students, were elected Members of the Association.

Mr. Ernes expressed his thanks for the honour conferred upon him by his being appointed to conduct the foreign correspondence of the Association. He might with truth assert, that the time had now arrived when it could be said that the eyes of the world—the veterinary world—were upon the proceedings of that Association. Numerous persons of eminence on the continent were not only desirous of being in possession of our proceedings, but were soliciting the honour of becoming corresponding members of our Society.

Mr. W. Marshall laid upon the table an amputated portion of the penis of a horse, weighing four pounds. The animal had been labouring under an attack of influenza, and from the debility that supervened, paralysis of these parts took place. On looking at the specimen it would be seen that it had become scirrhus and ulcerated, and, consequently, there would have been little chance of its ever being retracted again.

With regard to the operation of removing portions of the penis of the horse, it was thought little of in England, and was extremely simple, and very rarely did any unpleasant consequences follow.

The discussion on *Mr. Greaves's* paper on Indigestion was then resumed.

Mr. Ernes said, that the author of the paper had very ably described the usual treatment of Indigestion; but he—*Mr. Ernes*—demurred to the employment of aloes in large quantities; and to linseed oil he had a decided objection. Both of them acted too powerfully on the bowels, and sometimes proved prejudicial by causing accumulations of the ingesta. The horse was very liable to intestinal indigestion from this circumstance.

He had treated the disease with sulphuric ether and the potassio-tartrate of antimony.

On the continent bleeding was held to be objectionable; indeed, it was very rarely resorted to. In the cases in which he had thought it necessary to bleed, he had had recourse to the abdominal vein, and he thought with advantage. He had heard of the large intestines being punctured, the gaseous fluid liberated, and the horse relieved.

Mr. Greaves observed, that there were two kinds of "indigestion;" one of a mild sub-acute form, and the other acute. The former might exist for weeks in a dormant state, only waiting for some exciting cause to develop

it. In such cases he would not hesitate to give aloes, as well as in those of more acute indigestion. He had seen many cases where it had been necessary that a bold plan of treatment should at once be resorted to. In some instances, as much as forty or fifty pounds of food had been found in the stomach after death.

Mr. Ernes had seen many cases where bran had been the cause of indigestion; he therefore objected to bran mashes in most instances. It was in the large intestines that he had generally found the obstruction. He attended three mills, where a great many horses were kept, and there were generally two or three cases of indigestion among them in consequence of their being fed on bran or pollard. In those instances he had usually found that sulphuric ether had produced a better effect than the nitrous ether. In reply to questions from *Mr. Bland*, he observed, that he would bleed from the abdominal vein in cases of gaseous or intestinal indigestion; but he should refrain from doing so as long as it was possible. In the majority of cases bleeding was not advisable, because the digestive powers were weakened by it, and that at a time when those powers were required to possess their fullest energy.

Mr. Bland had seen many cases; and in all of them active purgatives were necessary—indeed, unless they were active, they were of no use.

Mr. Ernes had never found that purgatives had any very beneficial effect in these cases. The digestive apparatus of the horse was peculiarly formed. This animal had a small stomach; but in compensation for this there was a lengthened jejunum and ileum, and a capacious colon and cæcum, so that, after the food had passed through the stomach, the work of digestion would be still going on. Any thing, then, that tended to lessen the powers of the horse, must depress the power of digestion. He strongly advocated the use of mucilaginous drinks. They constituted, in fact, a principal part of his treatment of this disease. He also gave sulphuric ether in considerable quantities.

Mr. Greaves asked what medicine *Mr. Ernes* would give if the pains continued, and the symptoms led to the conclusion that the process of digestion was not going on.

Mr. Ernes replied, that if he found the urgency of the symptoms had not abated, and indigestion was still existing, he should continue the emetic tartar, or the sulphuric ether, in smaller doses, and should also have recourse to exciting enemata. In extreme cases he should puncture the intestine: and would leave the canula in the puncture until the gaseous matter had escaped.

Mr. Rolfe had had occasion to perform the operation of puncturing the intestine, and he kept the tube in until the gas had all escaped—in fact, until the next day.

Mr. Ernes was of opinion that if this operation failed it was mainly attributable to the fact of its not being earlier performed. He considered the operation to be almost devoid of danger, if performed in time; and all that was necessary to be done afterwards was to apply a piece of adhesive plaister over the aperture. He had never known enteritis follow it. His objection to bleeding was this;—supposing that he were to take a horse after a full meal, and abstract a considerable quantity of blood, he would assuredly produce a degree of indigestion; hence he inferred that bleeding in a case of indigestion was calculated rather to increase than to diminish or relieve it. If he had occasion to bleed, he always, if he could, selected the time when the horse was fasting.

Mr. Greaves observed, that in cases of acute indigestion there generally was congestion of the bloodvessels of the mucous membrane of the stomach,

which went on to inflammation; and, unless that was relieved by bleeding, inflammation would necessarily ensue.

Mr. Litt could not agree with *Mr. Ernes* in his opinion that bleeding was not advisable; for although it might produce indigestion in the healthy animal, it did not follow that it should lead to such a result where the intestines and the stomach were in an abnormal state. There were many cases in which bleeding was resorted to as a tonic, and there was no doubt that it had that effect. They had this fact to prove that *Mr. Ernes'* view was not correct, for it was the practice of veterinary surgeons, in a great many cases, to bleed for colic. He had done so himself, and it acted almost magically in mitigating the severity of the symptoms.

Mr. Greaves said, that his experience in both cases went to confirm the statement of *Mr. Litt*. If the spasms were not speedily relieved, inflammation would follow. He had seen many instances in which bleeding had been attended with the most beneficial results.

Mr. Wallis thought that bleeding was the best antispasmodic that could be resorted to. He should adopt the treatment advocated by *Mr. Greaves*, in decided preference to that recommended by *Mr. Ernes*; but he objected to the employment of large doses of aloes, for he had generally found that hypercatharsis followed. He preferred giving the aloes in solution, and in three or four-drachm doses, as occasion required. They were extreme cases in which aloes thus employed were prejudicial. The disease was of three or four days' standing. He had also found nitrous ether of great service when compounded with stimulants.

Mr. Ernes observed that it was to be remembered that the small doses of which he had spoken were to be given frequently—every two or three hours—until the object had been attained. He was no friend to large doses of scarcely any medicine.

Mr. Lawrence would not administer aloes in large quantities, but he should rely principally on the employment of linseed oil and opium. He had had a severe case very recently, and which terminated successfully under this treatment.

Mr. Wallis had seen some cases of indigestion in which, if bleeding had not been resorted to, the animals must have died from extreme irritation and excitement, therefore he should recommend bleeding.

TUESDAY, FEBRUARY 9, 1841.

The PRESIDENT in the Chair.

The Veterinary Society of Calvados and the Manche presented to the Association the seventh part of their Memoirs.

The Secretary exhibited an apparatus, invented by *Mr. Hall*, of London, for the purpose of cutting the pieces of steel imbedded in the toe of the shoe of the horse; remarking that, as science was built upon an accumulation of facts, so that which might appear to many the most trifling, was nevertheless worthy of

notice, and the very least circumstance that tended to its advancement is deserving of publicity.

The plan suggested by Mr. Hall had simplicity to recommend it, while, at the same time, the object in view was effectually accomplished. The apparatus consisted of two parts: 1st, a piece of iron rounded on the upper surface, having a groove in it, and made to embrace the anvil; and, 2dly, a chisel, the cutting-edge of which is hollowed to the required curvature of the steel tip. The bars of steel being heated, a blow of the hammer on the chisel cuts the steel tip into the required wedge-like form. By taking a larger breadth of steel within the chisel, the piece obtained may be used for nobbing.

The following letter from Mr. WRIGHT, V.S., Burham Overy, was then read:—

Dear Sir,—Being one of the old school, and a somewhat close observer, my desire is to communicate only facts; and did time allow, I would supply you with many other cases. Three-fourths of my practice being contracted for, I attend hundreds of animals that otherwise I should not have the opportunity of seeing. Not less than 3000 beasts have passed under my hands during the last twelve months, but the horses have been comparatively healthy.

I was one of those who contended that this epidemic was not contagious; but what I have suffered in my own person has altered my opinion. I was sent for to look at a yard of cattle labouring under the disease, and I carefully examined the whole of them. One beast in particular was emphysematous from head to foot. I had a small wound on the upper part of my fore finger at the time. About twenty-four hours afterwards I felt an acute pain followed by swelling in the finger, hand, and arm, and attended by such heat that I applied snow in order to cool it.

On the second day I was called to a mare, about ten miles from home, and Mr. Paul, a surgeon from Docking, was attending some part of the family at the same place. He was the first medical gentleman to whom I shewed the wound. His advice was as follows:—To go home; to take plenty of cathartic medicine; poultice my finger; live upon gruel, arrow-root, or sago; and drink nothing but tea, coffee, &c. He said, if I did not follow this plan, he much feared that my finger would mortify. My answer was, that I could act up to every thing he had recommended, with one exception—staying at home, it being Christmas time, and I having so many things to attend to; and I added, that, if it would mortify, it must do so as I travelled about, for I had no time for it to mortify at home.

Thinking that in the multitude of counsellors there is wisdom, and being acquainted with all the medical men in our neighbourhood, I consulted them respecting it. Some advised me to apply the lunar caustic, with a poultice over it; and others, as there was great effusion, recommended me to charge the system with mercury, so as to stimulate the absorbents. After hearing all their opinions, I decided for myself. I took calomel and extract of colocynth until they operated powerfully on my bowels. I poulticed my finger, and applied Goulard's lotion to my hand and arm when at home. I was driven out every day on business, with the poultice on my finger. I, however, suffered very much both from pain and cold, and suppuration took place to a great extent. I dressed it with the digestive ointment, and I am happy to say all is well now, and I am in the field again as fresh as ever.

Now for business.—*Case of a black cob pony, with incipient farcy.*—A few days back I was requested to attend upon this horse. The owner informed me that, in June last, he got the pony up, to have him gently ridden by the horse-breaker. The animal was ridden every day gently, as he expected, and turned out into the grass field at night. On getting him up one morning the servant informed his master the horse was *corded* from head to foot. He had him bled; a dose of physic was given, two rowels were inserted, and diuretics subsequently administered.

The owner found the cords getting harder and harder (I use his own words), and he was therefore determined to discontinue the exhibition of medicine. He had the rowels removed, and turned him into a good marsh, about one mile from the sea; but not finding him to get any better, he requested me to attend upon him; and most certainly, when I came to examine him, I was surprised. From the branch of the lower jaw on each side down to the sternum—at the posterior part of each shoulder—along the subcutaneous vessels on each side of the body—from the ileum on each side down to the flank—from the flank to the groin on each side, was, as he had represented it, like a cord to handle, from the size of whip-cord to that of a bell-rope. I told him I considered it to be a disease of the absorbents; and had he not turned him out, I had no doubt that suppuration would have taken place. The state the absorbents were in I cannot compare to any thing so much like as the vessels of a horse's kidney I once found ossified; but look at the branch of a tree, and you have a similar thing before your eyes.

I commenced my treatment by giving four drachms of aloes, which operated well, and after the bowels had set I administered

one drachm of diniodide of copper every day, with gentian, with considerable benefit; in fact, until he became so outrageous that we were obliged to discontinue it. I had him home on purpose for the experiment, the proprietor telling me I might do as I liked with him, which I did, for I had never before met with such a case in my practice.

While he was taking the balls, I had the hair cut away as close as possible, and an ointment, compounded of one drachm of the deuto-ioduret of mercury and one ounce of lard, applied over the enlarged absorbents on three successive days. I confess that I never was more pleased with the action of any medicament than with this: the owner, however, declared that we had flayed the animal alive. I had him well oiled after the parts became clean, and it was again applied to every part that was diseased.

The owner now took him home, saying he could not bear to see the poor beast punished so much. After he had had him home a little time, and the parts became clean, he saw so much improvement that he allowed my young man to apply the ointment the third time, which has removed all the enlargement of the absorbents, with the exception of a few under the flank, and they are not one-fourth the size they were previous to giving the diniodide of copper, and applying the ointment. In a short time I hope to make a perfect cure of my patient.

It is my intention to make general use of the ointment referred to. I have applied it since to tumours situated on the inferior part of the neck, which repeated blisters had not removed. They were as hard as a cricket ball, and about the same size. I have dissected many out in my time, and should have operated on these, but this ointment has saved me the trouble. I saw the horse at work the other day as well as ever.

The next case to which I applied it was a horse with a bursal enlargement on the elbow. A farrier had been setoning, blistering, &c. but without beneficial effect. The application of this ointment has effectually reduced the swelling.

The next was a young horse with thorough-pin. This I had blistered myself without doing any good, and was about to fire him; but the ointment in this instance also did all that was requisite. The fact is, I have such faith in it that I am compelled to give it the character it deserves, with thanks to the young veterinarian who brought it forward, and the same to you for the diniodide of copper, having, in addition to the case of farcy above recorded, been successful in many others, and also in curing the worst cases of nasal gleet I ever met with.

I will now relate to you three other cases that have fallen under my notice, and all in about eighteen months, on one farm. Mr.

W. Wright, of Tring, about nine miles from me, had a chestnut horse, five years old, that cast himself with the halter, and bruised his head and neck to a great extent. I bled him, gave a dose of physic, and fomented his head.

After the inflammation had subsided, we found both the top and bottom lip paralysed. He was able to take nothing but wheat or pea meal, and bran mixed with water for some months. Friction was applied every day without any good effect. I had him at my infirmary, and was advised by a medical friend to try strychnia made into an ointment, applying it every day with a bladder on the hand; and, to my great surprise, in one month after, the animal became perfectly sound, and he now can gather his food as well as ever, and go before in the head team, to the great astonishment of many.

The other two were cases of locked jaw, in which, having lost many, I determined to abstain from blood-letting and blistering. I commenced by giving Barb. aloes 3ij and opium 3ij, made into a ball with hard soap, and put down the throat with a stick morning and night, until purging came on, when I discontinued the aloes, and gave opium 3i, night and morning, until the aloes left off purging the horse, when I united 3i aloes to the opium, and continued it until a perfect cure was made of both the horses. Fresh sheep skins, I must add, were always kept on the loins, without any other stimulant being applied. Wheat-meal, pea-meal, and bran with water, was all they subsisted upon. I have succeeded in curing others in this way lately. I have therefore made up my mind never to bleed or blister any more.

The last case I have time to record is, perhaps, one calculated rather to awaken astonishment than interest. I was requested by H. Blyth, Esq., of Burnham Market, a few days back, to open a horse that had died suddenly. On opening the abdomen I found distention of the stomach to be the cause of death. My assistant prevailed on me to weigh the stomach, which I did. The contents were corn, chaff, and clover, and the weight 109 pounds. Allowing one pound for the halter, 108 pounds will be left as the weight of the stomach and its contents, which was the greatest weight I ever met with in my life.

Mr. Wills then made the following observations on the ointment adverted to by *Mr. Wright*.

Since I had the honour of making known to the Association the effects of the agent, biniodide of mercury, referred to in the letter just read from *Mr. Wright*, other cases illustrative of its action have fallen under my notice, which I will take the liberty to relate.

CASE I.—July 15th, I was requested by a gentleman to examine a brown mare, which had curbs on both hocks. He had previously consulted a practitioner, who informed him that nothing but firing would be of any avail in

the removal of them. The owner declined having the operation performed, lest it might produce a blemish, as the mare was a valuable animal; and he wished to know if by any other means it was possible to reduce them. One of the curbs was large and indurated, and evidently had existed for a long period, on which account I rather hesitated in giving a decided opinion. I therefore informed him that one of them, I believed, I could remove; but I would not say positively whether I should be able to succeed in perfectly removing the other, though I had no doubt that I should considerably reduce it without occasioning any blemish. He told me he would not be particular as to the length of time required, provided there was a cure ultimately effected. I need not describe the mode of application of the compound; suffice it say, I followed pretty closely the directions given in my paper on this subject last session, and, in six weeks from the time I commenced the treatment of the case, the curbs had quite disappeared.

CASE II.—*A brown colt, lame of the near fore leg.* The usual anti-phlogistic remedies had been employed, and the animal rested for nearly a month without any apparent relief; at which time the fetlock joint remained enlarged, and there was evidently a bony deposit around the lower extremities of the os suffraginis. I commenced the application of the ointment on the 14th of August, and on the 10th of September the animal was perfectly sound, the enlargement having gradually subsided. He was sold on the 8th of November, and passed by a veterinary surgeon.

CASE III.—*A bay horse, which had enlargement of the bursæ mucosæ of the hind pasterns (commonly called windgalls).* They had been repeatedly reduced by blisters and rest; but no sooner was the animal returned to work than they again became enlarged. By the agency of the biniodide of mercury they were again reduced, and the horse returned to work; and I have been informed lately, that he continues to work without the least return of the distention of the parts.

I could adduce several other cases; but I think from these it may be inferred that in the compound of iodine with mercury, we have an agent which, if not so quick in its operation as the actual cautery or blisters, is one whose effects are more permanent, and never attended with blemish, which is always the case after firing, and often after blistering.

The following Essay on

PNEUMONIA IN CATTLE,

Contrasted with the same disease in the Horse, by Mr. J. FRYER, was then read.

To the Members of the Veterinary Medical Association.

Gentlemen,—The duty of presenting you with a thesis for discussion having now devolved upon me, I am about to lay before you a few remarks on a subject that, I trust will be interesting to all, and profitable to many of you.

I have chosen to speak of one of the most common diseases in cattle, because they are animals which most of you will be called upon to treat; and I may also add, upon the treatment of which your professional reputation will, in a great measure depend. I am about to contrast this malady with the same affection

in the horse, because I consider that I shall, by so doing, impress more forcibly upon your memories all that is necessary to be known on the subject. We judge of things by comparison, and there is nothing so calculated to make a lasting impression as a strong contrast.

One word more by way of introduction. I shall have but little to say respecting the horse in the following Essay. The most prominent characters of the disease under consideration, as they manifest themselves in that noble animal, will, of course, be glanced at; but I take it for granted that every member of this Association is acquainted—minutely acquainted—with its details; and I trust I shall be right in doing so. Every student of this Institution—ay, even he who was entirely ignorant of the subject at the time of his entrance—ought now fully to understand Pneumonia in the Horse; at least I would remark, that he must be either a very dull or a very inattentive observer if he does not; for there is no place where he can have greater advantages than at the College.

The term pneumonia has been used by some nosologists to designate disease in any of the thoracic viscera, inclusive even of the heart and its appendages; but Cullen limits it to peripneumonia, or inflammation of the parenchymatous structure of the lungs, and pleuritis; while a third class add to these that inflammatory affection of the air-passages which we call bronchitis,—and it is in this last extended sense that I wish to be understood when I make use of the term pneumonia. This may appear to some an inelegant and anomalous construction to put upon the word, and perhaps it is so. I would add, however, by way of justification, that I have not been the first to apply it; and I only use it in such a sense because I consider it admirably expressive of the complicated association of diseases of which I am about to speak.

Much has been said by medical authors, human and veterinary, of the distinctions between the diseases of the bronchi and those of the lungs, or their investing membrane. Of the correctness of the physician's diagnosis, I am, of course, unable to judge; but I am decidedly of opinion that the hippiatrist has laid too much stress on the absolute existence of these affections, apart from each other; and I am satisfied—practical experience enables me to speak thus firmly—that all that has been written by cattle pathologists on this subject is altogether conjectural, or arises from a fondness of theorizing.

I have never seen a case of bronchitis in these animals in which the lung itself was not more or less affected, nor of peripneumonia in which the air tubes did not participate in the inflam

mation; and I am further of opinion, that pleuritis—*idiopathic* pleuritis I mean—is but seldom met with in cattle. These, indeed, are sweeping assertions, widely at variance with any that have been previously made;—but I am satisfied of their truth, and, therefore, state them unhesitatingly.

Causes.—Starting off with these premises—that the pneumonia of cattle is in most, if not all, cases a compound disease affecting in common both the lung and its cells, and sometimes extending also to the pleura, and that it may, in this respect, differ somewhat from the malady which bears the same name in the horse—let us now look to its causes. These will, I think, be found less numerous than in the horse, because the life of the ox or cow is less artificial. Excepting instances of draught oxen, about which I know nothing, we exact little or no labour from those animals. The lungs are but seldom called upon to perform inordinate action, and therefore the cause, which we find so productive of inflamed lungs in horses, is here almost entirely wanting. When, however, a cow has been driven too hastily for a long distance, I have frequently known pneumonia supervene; and I would add that, as is the case with the horse, whatever may be the exciting cause, the plethoric animal is always more liable to take on the disease than any other.

But by far the most common cause of pneumonia in the cow is the too rapid change of situation or pasture, and hence the reason why this disease is so prevalent at the season of the year when cattle are turned into *fog*. So common, indeed, is inflammation of the lungs at this particular season, that the farmers and farriers, in most of the English counties, judging no doubt rightly of its causes, have designated it "*fog fever*," and by this significant and not inappropriate term it is pretty generally known in the country.

The other causes of this disease, such as sudden changes of temperature, &c., as they are not peculiar to cattle, do not come within the range of my subject, and therefore I shall pass them over.

I have said that the plethoric animal is most subject to attacks of pneumonia; and I would state it further as my opinion that there are certain periods of his age in which he is more obnoxious to disease, and particularly to the one under consideration, than others. The first twelve months of their lives I believe to be the *dog-days*, so to speak, of cattle. The calf of a few weeks old is, in dairy districts, peculiarly subject to inflamed lungs, probably on account of its being deprived of the natural and tender warmth and care of its parent nurse; but why the yearling should be more subject to disease than the two-years-old,

is a question less easy of solution. I may also add, that cattle are seldom in the list of our patients between the ages of one and three years, for reasons alike unknown. These assertions, however, I wish to be accepted with modifications.

Symptoms.—Most, nay all, who have hitherto written on cattle pathology, have been content, in their enumeration of the symptoms of pneumonia, to mention merely the most prominent ones that appear in the horse. But the analogy is by no means a correct one; for there are points, ay, and important ones too, of difference—distinctive marks, which the practical man can scarcely have failed to observe, and such as would be very likely to mislead him whose practice had been previously confined to the horse. I beg, therefore, to call the attention of my hearers particularly to this part of my subject.

When called in at the onset of the disease, the pulse will be found, for the most part, but little, if at all, disturbed; indeed, I have seldom or never, at this period of the disease, found it higher than 55; and this I am inclined to reckon about the standard pulse of the cow. The artery may or may not present the ordinary oppressed character of the pneumonic pulse, dependent, perhaps, upon the extent to which the parenchyma of the organ is affected; but the respiration will invariably be found hurried, and the animal will occasionally *hoose* or cough, whilst there is a slight discharge generally from both the mouth and nose. The animal appears uneasy, has ceased to ruminate, and may either lie down frequently, or stand for a considerable time, *but most commonly the former*; and let it be borne in mind, that *calves labouring under pulmonary inflammation invariably lie down, and are with great difficulty moved*. I would here also remark, that I have never found the cow's pulse, even in the exacerbation of disease, any thing like so much above the ordinary standard as is that of the horse. Query:—Has this fact, for such I believe it to be, any thing to do with the absence of the buffy coat of the blood in cattle?

With respect to the other symptoms of this disease, such as the injected membranes, cold extremities, &c., I know of no particulars in which they vary from those of the horse; but I cannot help warning the young practitioner against placing too much reliance upon the statements of book-makers about the “deathly coldness of the legs, ears, &c.” Such things sound highly in exaggerated descriptions, and serve very well to round off a flaming period or sentence; but they are by no means so common in the yards of our employers as in the books of our authors: not that I mean to deny altogether the existence of this as a symptom of

inflamed lungs ; but I do assert that it is by no means an invariable concomitant of the complaint in any of our patients.

From what has been said, it will be seen that the most remarkable point of difference between pneumonia, in the two animals that we are more particularly called upon to treat, is that which relates to the fact that the ox will lay down, whereas the horse will stand up for an indefinite period, when labouring under inflammatory affections of the lungs. In making this statement I know I am at variance with all who have hitherto written upon the subject ; but I feel satisfied that the practical gentlemen present will bear me out in my assertions.

Assuming it as a fact, then, that cattle of all ages will lay down, and sometimes for a considerable period, while labouring under pneumonia, and that calves invariably do so, the inquiring mind will next seek for the causes of this. These, I believe, to be three in number :—1st, The circumstance of the cow's resting upon her sternum rather than her side, which will enable her to expand her chest more fully when down than she could otherwise do ; 2dly, The absence of that patient spirit of endurance so remarkable in the horse ; and, lastly, I am of opinion that the muscles connected with the fore extremity have less to do with the respiratory process. This, however, is mere conjecture on my part.

I have spoken of the horse as remarkable for his patient spirit of endurance. The fact is undeniable. It is this spirit which enables him to bear up against the most harassing fatigue and the most severe pain, that has placed him at the head of domesticated animals, and in no respect is this more forcibly shewn than when labouring under disease. This leads me to another very important circumstance to which I wish to call your attention, namely, the fact that cattle are always much louder in their complaints than are horses. The moanings of a pneumonic cow may mostly be heard at a considerable distance, and the respirations will often outnumber the contractions of the heart ; so that the inexperienced veterinarian, or he who reasons entirely from equine analogy, might pronounce as incurable a cow which is not even dangerously ill.

Treatment.—The principal things to be attended to in the treatment of inflammation of the lungs in cattle are *venesection*, *purgation*, and *counter-irritation*. The former I carry on until symptoms of faintness appear, and, after all, sometimes find it necessary to repeat the operation several times. Purgation also is here little, or not at all, to be feared, and after being excited may be kept up for several days with beneficial effect. The

agent which I make use of for this purpose is the sulphate of soda, which I have found much more certain and efficacious than the sulphate of magnesia, although I know that this latter drug is preferred by most practitioners:—for calves I mostly use the oleum ricini. Lastly, I would say that as a counter-irritant I much prefer a blister to the sides to the more common, but, in my opinion, less efficacious practice of setoning, pegging, or rowelling the dewlap.

A word with regard to sedatives. I seldom administer them to the cow, because I am very sceptical respecting their action in this animal. I have found digitalis to be almost inactive here; and some experiments instituted last summer by me, in company with my friend Mr. Litt, led us to the same conclusion regarding belladonna. I shall feel great pleasure, however, in hearing the opinions of other members on this point.

I have now brought my subject to a conclusion, and I trust that I have said much that will provoke discussion, and tend to the establishment of truth. I have stated freely, and with but little regard for the opinions of others, my own views of the subject; and I now good-humouredly challenge contradiction. We are all prone to err, and, if it can be proved to me that I am in any part mistaken, I shall not be loath to acknowledge it, for we have nothing to lose by eliciting truth.

Mr. Fryer stated, in answer to some questions that were put to him, that the blistering compound which he employed was composed chiefly of cantharides; that it certainly did not cause the same amount of vesication in the ox and cow which it did in the horse, but that it produced much tumefaction and extensive inflammation. It acted as a powerful counter-irritant. He preferred this mode of counter-irritation to the introduction of hellebore under the skin. The surface affected by the hellebore was comparatively small.

In answer to *Mr. Greaves*, he replied that he had seen many cases of congestion of the lungs, but more of effusion into the chest in the cow.

Mr. Greaves had also seen several cases of hydrothorax in which recourse had been had to the operation of paracentesis thoracis, and large quantities of fluid had been taken away. Generally these patients did well.

It was a singular fact connected with the treatment of inflamed lungs in the ox and the horse, that purgatives might with impunity be exhibited in large quantities to the former, and the action of the bowels kept up for several days; but in the horse two drachms of aloes would often produce super-purgation when the animal was labouring under this disease, while a much larger dose would not be productive of the same effect at another time.

Mr. Fryer had seen many cases in which faintness had been produced by bleeding, and the animal had recovered. He did not mean to say that he would bleed until the patient fell, but merely until the withdrawal of blood had produced a very marked effect on the pulse.

The President observed, that long before the patient fell the pulse would usually evince strong indications of approaching syncope.

Mr. Mayer had seen many cases in which the patient had fallen down, and those cases had always terminated fatally.

Mr. Fryer, in reply to the President, said that there was, in this disease, no buffy coat on the blood after coagulation. He was not aware of any material difference in the constitution of the blood of the horse and the ox. He had often observed some serum on the top, but no buff. From the observations which he had made, he could not say that he had seen much difference in the coagulum of the blood taken from the horse and the cow. With regard to the ordinary state of the pulse in this disease, he should say that it was about 8 or 10 more in the cow than in the horse. He had never seen any good effect from the exhibition of digitalis. From tartar emetic and nitre he had witnessed a decided effect on the pulse in the course of a day.

Mr. White stated that digitalis would produce an intermittent state of the pulse, and gradually lower the action of the heart.

Mr. Fryer repeated that he had tried digitalis in some cases in very large doses, but he had never known it to produce an intermittent state of the pulse in the cow.

Mr. White preferred giving it in small doses and frequently, and then it would produce the desired effect.

Mr. Litt said that as his name had been mentioned in connexion with some experiments that had been made on the effect of certain medicaments in this disease, he would observe that when he was with *Mr. Fryer* many cases of pneumonia occurred. At first they tried the effect of digitalis very extensively in combination with nitre and emetic tartar, accompanied occasionally by small doses of salts, for the purpose of keeping up the purgative action. In all these cases, and with that treatment, they had not met with a single instance of an intermittent pulse. This agent, in fact, had not had any effect on the pulse; and, therefore, finding this to be the case, they had left off giving the digitalis.

They then tried belladonna, but in no instance had it led to any thing more than a slight sedative effect. With respect to an intermittent pulse he could not say that he had ever met with it in the cow, although he saw no reason why it should not occasionally exist. The pulse in the cow was generally between 50 and 60.

There were many points mentioned by *Mr. Fryer* which had not been spoken of by the authors of the day. For instance, among other things he had stated that animals attacked by this disease lay down; while *Mr. Youatt*, in his work, had said that the cattle stood up obstinately. He would beg to ask *Mr. Mayer* what his experience in this respect had been.

Mr. Mayer had certainly seen them lie down.

Mr. White had frequently seen both blisters and rowels employed in this disease, but he preferred the rowel. He had put blisters over the rowel and on each side of the chest, and found the blister applied in that way to produce more speedy and effectual suppurative inflammation.

Mr. Mayer had too often found the blister exceedingly uncertain in its effect. It was not, in point of fact, to be always relied on. To rowels he had a decided objection, for he had seen cases in which they had led to mortification. He decidedly preferred the seton.

Mr. Sayer had seen equal parts of the oil of black mustard-seed (*sinapis nigra*) and rectified spirit used. It produced considerable vesication. He had felt the intermittent pulse of the cow; indeed, he had met with a decided case of it about three weeks ago.

Mr. White had never employed a seton in the treatment of this disease, but he had frequently produced suppuration in thirty-six hours by the use

of hellebore. With the hellebore he inserted tow, soaked in turpentine, to keep up the action.

Mr. Brown had employed the seton, but he could not say that any suppurative action had been produced in less than four or five days. The blisters that he employed in ordinary cases in this disease were composed of cantharides with equal parts of spirit of turpentine and oil. This combination had more decided action than the seton or the rowel.

The President said, that the action and relative power of these foreign agents were considerations of great importance. If a piece of tape only was introduced under the skin of the horse, a high state of inflammatory action, followed by suppuration, ensued. If, however, the medicated tape was used according to the plan of their indefatigable Secretary, suppuration would be more quickly brought about, and to a greater extent than by any other application.

Mr. Fryer must again repeat, that with respect to the action of blisters, when applied to the sides of the cow, he had seen it decidedly apparent in the course of a few hours, and exceedingly good effects had followed; whereas the action of the seton and the rowels was, in many cases, not observable until two or three or even four days had passed, and then the disease was otherwise remitting, or the fate of the animal had been sealed.

Mr. Stowe had used setons very extensively in the treatment of cattle, and particularly during the late epidemic; but he had never seen suppuration produced earlier than the eighth or tenth day. There had been, however, a great deal of tumefaction prior to that period, which would be very serviceable in the metastasis of inflammation.

Mr. Fryer had stated that it was sometimes necessary in this disease to give large quantities of purgative medicine; and he had frequently seen cases in which, after the administration of two or three pounds of the sulphate of soda, there had not been any effect produced.

The Secretary remarked, that the different opinions advanced by those who had taken part in the consideration of the Essay introduced by *Mr. Fryer* convinced him of the value of such discussions, and at the same time unfortunately shewed how little was really known. From this it was evident that neglect of an all-important division of veterinary science had been allowed to take place: happily for those who heard him, such was not likely much longer to exist.

He confessed he could not reconcile the discrepancies that he had heard; and here he more particularly referred to those divisions in which, as it might be supposed, he took a greater interest than in others; he meant the action produced by certain medicaments on the cow and ox as contrasted with their effects on the horse. He would leave to physiologists to describe the why and the wherefore; but he was startled when he read that sedative agents, in the opinion of *Mr. Fryer*, caused but little if any action in the cow. Others, however, had witnessed decided action from them, and with them he was inclined to concur; yet this concurrence, perhaps, only arose from his being unable to explain the reason why similar effects should not be produced.

An intermittent pulse, induced by digitalis or otherwise, was also another debateable position; but here again it appeared that this pulse had been produced and observed. Now to the credit of Mr. Fryer be it said, he acknowledged that he spoke with diffidence on these points, and he courted the opinions of the members upon them. This was the way to arrive at truth.

As it respected the suppurative inflammation being set up, much difference of opinion had also existed; some contending that it had taken place in sixteen, others in forty-eight hours, and others averring that several days were required. Probably these disagreements were referrible to the agents employed. He had always understood that the black hellebore was a far more powerful stimulant and suppurative to the skin of the ox than cantharides or any other drug. Why vesication should be only with difficulty brought about in this animal, might probably depend upon the comparatively low degree of nervous sensibility of the integument.

Since it had been the practice from almost time immemorial to give purgatives to the cow in the form of draughts, it might appear heterodox to advocate their exhibition in any other form; and certainly by the solution of our drugs we more quickly effect our desired object, if so be that judgment is exercised in their administration. But many have found ill consequences to supervene on the giving of a draught, and they have been induced to substitute a ball, giving aloes in doses of from eight to twelve drachms, instead of the sulphates of magnesia or soda. Mr. Baldwin, of Fakenham, first made him acquainted with this fact, which has been since confirmed by Mr. Wright, of Burnham Overy, and several others.

In some experiments lately instituted by their President, balls given to ruminants were found in the second division of the stomach, while the greater part of fluids passed into the first. Now, according to the view taken by Mr. Spooner of the functions of the different compartments of the stomach, whatever passes into the second compartment undergoes compression there, and, if in a fit state, is forced onwards to the third stomach, and thence into the fourth, or true stomach; so that the return of the ball into the mouth during the act of rumination is not to be apprehended, as has been by many thought.

FEBRUARY 16, 1841.

Mr. SANSOM, V.P., in the chair.

The Secretary read the following communication from Mr. DICKENS, V.S., of Kimbolton, and Corresponding Member of the Association, on the Destruction of Filariae in the Trachea and Bronchi of Calves.

Mr. Secretary,—With pleasure I perceive, in the published Abstract of the Proceedings of your valuable Association for the past month, that the hitherto somewhat destructive disease so aptly termed the *hoose* has been canvassed over by its members; and two illustrative cases, accompanied by morbid specimens, have been presented by Messrs. Darby and Lepper. I am the more pleased, because, probably, your memory will remind you that I am not an inquirer of yesterday into the nature of this insidious disease, having solicited the opinion of the worthy Editor of THE VETERINARIAN on it as far back as 1831, *vide* vol. iv, p. 676, as well as given my then treatment. Since that time the wrinkle of practice has become more deeply imprinted on my brow, and having seen much of the disease, the views I then held are somewhat altered, the treatment is successful, and I feel that I should be unworthy of my election as one of your Corresponding Members, did I not at once communicate the results to you. In doing so I shall confine myself to remedial measures only. The character of the parasite has been so ably explained by that indefatigable veterinarian, Mr. Mayer, that, did I feel myself competent, it would be but an ill occupancy of your time for me to make the attempt.

I shall preface my treatment by stating that I have often tried tracheotomy, but with only temporary success. I have also had recourse to fumigation; but I must own I was never sanguine as to its good effects, looking upon it as merely grappling with an open enemy, when there were others lying in ambush ready again to attack me. Your worthy President, Professor Spooner, has said, that it is to be regretted that no effectual means of eradication have as yet been found out. I could only wish, if opportunity should offer, that he would put my treatment into practice; and I am sure he would be pleased with the result. I need not add, that I know his generous mind would render honour unto whom it was due. With him, I believe that they are the result of a diseased action of the mucous lining of the respiratory passages: hence I have had recourse to such remedies as will affect the nidus as well as the worm.

In November and December, 1831, I was called by a gentleman to see seventeen calves, from six to twelve months old. He had previously lost three or four; and on examining the trachea, &c. of them, myriads of these tormentors were to be seen. Some of the living calves were in a sad emaciated state. I ordered them to be placed in a warm yard, and gave to each a dose of aperient sedative medicine. In the worst cases I inserted a seton in the chest, and, more by the desire of the owner than my own wish, they were all bled, from eight ounces to one pound being taken from each. In a few days some of them were a little improved, but two of the weaker ones had died; or, shall I venture to speak the truth, and say, they were in part killed by the bleeding. The aperient dose was repeated in a few days, when I received a peremptory order to bleed them all again, the owner having been urged to it by a medical friend. I, however, refused to do so, respectfully telling him that I had given the subject deep consideration, and was resolved, with his permission, to put them under a very different course of treatment; in fact, to place them under the influence of some agent that would act both upon the parasite and its nidus, through the medium of the circulation.

To each calf I gave the following draught:—

Ol. lini.....	ʒiv
Ol. tereb.....	ʒi
Ol. carui.....	gtt. xx. Misce.

In a day or two afterwards the beneficial effects of this were quite discernible. The animals all appeared to husk much less: the oil seemed to have acted beneficially upon the intestinal canal; and their appetite had improved. The dose was repeated to each in about ten days, and again after the lapse of another ten days; after which my patients were all well, and required no more medical assistance.

You may be sure that I was well pleased with this result. I have been since called to many cases, and have pursued the same treatment, always adhering to my three doses, at the interval of ten days each; but, of course, I have proportioned the dose according to the age, size, &c., of my patients, the dose I have stated being for animals from six to ten months old.

I will not go to such an extreme to say, that since I have pursued this treatment I have not lost a case; but “they are few and far between;” and I now attack such patients with an assurance of perfect success; and so beneficial do some of my employers find it, that they keep a constant supply by them, and dose their young stock periodically; among whom I may mention the name of Wm. Ladd, Esq., one of the stewards of the last Smithfield cattle show.

In giving you this outline of my treatment, I may be told that

there is nothing new in the information of the turpentine being destructive to the tribe *vermes*. The position is granted; but it may be somewhat beneficial to the younger branches of our profession to be informed that it may be given in sufficient doses to answer our desired purpose, when combined with a menstruum that is equally requisite to accomplish our ends, viz., the ol. lini, the value of which as an aperient or laxative being too well known to all engaged in cattle practice to need any comment from me. In some severe cases I have, with fancied if not real benefit, substituted that old-fashioned and disagreeable but not to be rejected medicine, the balsam of sulphur.

It has given me no little pleasure to find, that the Editor of the only work in the English language on Cattle worth reading (excepting Skellett's Practical Remarks on the Cow), has hinted at the practice I have enforced, in his Farmer's Series, "Cattle," page 399, published subsequently to my employment of the remedy. He says, it may promise occasional success; but he will be pleased to hear me go further, and tell him, without any hesitation, that it promises general success.

I am, your's truly, &c.

P.S.—I should not forget to state, that I invariably act as follows:—Suppose my patients are attacked in the spring, I earnestly recommend that they should undergo the like course of treatment in the autumn, and *vice versa*; and although I give three doses of the medicine as a general rule, still I do not strictly adhere to it, sometimes giving more or continuing it longer.

The debate on Pneumonia in Cattle was then resumed.

Mr. Goodwyn said, that in cases of pneumonia in the horse, the administration of a strong purgative would be attended with considerable danger. It was so in cattle; but when the stomach and intestines were once relieved, would it be right to keep up the purgative action?

Mr. Fryer replied, that he had never found any bad result from it, but the contrary. He had seen many cases of inflamed lungs in cattle, and he had never known any danger to result from administering large quantities of purgative medicine. In answer to questions concerning the relative value of setons and blisters, and the mode of applying them, he said that he should prefer the blister, and apply it to a large surface. He had never seen so much benefit arise from the insertion of setons as from the application of blisters. This arose, no doubt, as much from the quantity of hair on the animal as on the texture of the cuticle. If he ever had recourse to setons, he should arm them with turpentine or ointment of cantharides. He had used hellebore, but never derived any decided advantage from its use.

Mr. Goodwyn.—I have lived with a practitioner who was in the habit of using hellebore, and he produced suppuration much sooner by means of it than by any other irritant. I have seen it plentifully produced in the space of fourteen or fifteen hours; and this, when the animal was labouring under considerable inflammation, and it was not always easy to produce counter-irritation. He had no hesitation in saying, that suppuration could be pro-

duced as easily in the cow as in the horse. As to purging, the stomach of the cow is a very complicated piece of machinery, and widely different from that of the horse; yet there was rarely much difficulty in producing purgation. Many persons have denied that even a pound of sulphate of magnesia was sufficient to purge the cow; but he begged to state, that the contrary was the fact.

Mr. Fryer was decidedly of opinion that a pound of sulphate of magnesia or soda will produce a state of laxity and even purge. Working oxen were more subject to this disease than cows.

Mr. Timberrow asked whether suppuration might be produced in less time in the cow than in the horse.

Mr. Goodwyn was certain that suppuration could be produced sooner by hellebore than cantharides. He recollected a case of some pigs, in which hellebore was put into their ears, and it killed them all in less than twenty-four hours. He had tried setons with pigs, and he had made use of hellebore, and had succeeded in producing suppuration by means of the latter in a very short time.

The Chairman begged to offer a few observations with regard to the use of belladonna, alluded to by *Mr. Fryer* in his Essay. During the summer vacation, he was requested to go with a veterinary surgeon to see a case of pneumonia in a cow, when he suggested the use of belladonna, with spirits of nitre. The effect on the disease was decidedly beneficial. Considerable dilatation of the pupils was produced by the belladonna. He had since received a letter from the gentleman whom he accompanied, stating that he had frequently adopted the same treatment since with the same results. As it regarded setons, he had never used them, being always in the habit of blistering.

Mr. Sayer said that he had seen belladonna resorted to with a view to produce an intermittent pulse in the cow in cases of pneumonia, but he had never known the slightest benefit to be derived from it.

Mr. Heffer thought it very bad practice to blister the sides of cows. He would wish to know from *Mr. Fryer* whether he had ever seen a good laudable pus produced in a cow at any time. He had never seen it, and he confessed that he was at a loss to assign a reason for this.

Mr. Fryer had seen it that very day, at *Mr. Stavely's*. He would ask *Mr. Heffer* what he used as a common irritative?

Mr. Heffer used black hellebore, and it generally sloughed out and was expelled from the place to which it had been applied. He wished to know what *Mr. Fryer* meant by the disease "fog fever."

Mr. Fryer.—The reason why I use the term, is because cattle are generally attacked after being turned out into "the fog," or second grass.

Mr. Fryer, in answer to the inquiry said, that gangrene was a frequent termination of pneumonia in the cow.

Mr. Heffer had known it frequently to terminate in red-water.

Mr. Rolfe said that the treatment which he had recourse to was Epsom salts in the morning, and potash and camphor and white hellebore at night: if these had no effect on the pulse, he gave the hellebore once in the day, as well as at night. He had frequently produced an intermittent pulse in the cow by the administration of hellebore. He never knew a case of puerperal fever without some intermittence of the pulse.

Mr. Fryer said he did not mean to deny that such might be the case, but he had never seen it, although he had given digitalis and belladonna (especially the latter in large quantities) many a time.

Mr. Greaves wished to know from *Mr. Heffer*, whether the cases he had seen had, in the early stage, the usual symptoms of pneumonia.

Mr. Heffer said decidedly it was inflammation of the lungs, which gradually and eventually settled into red-water, and left no husk behind it.

Mr. Greaves asked whether a cow might not have diseased lungs, and yet the quantity or quality of the milk not be interfered with.

Mr. Fryer said that, if there was any chronic disease of the lungs, the condition must fail, as also the milk.

Mr. Sayer asked whether *Mr. Goodwyn* was to be understood to state that he had administered six or seven pounds of salts.

Mr. Goodwyn said he did not mean that he had given so large a quantity at once. It was given in doses of half a pound at a time, until all was taken. In town, if the cow was not relieved immediately she was sent to the slaughter-house, because the owner thought that the first loss was the best. In the country, however, they had adopted a different mode of treatment. He should like to hear from *Mr. Fryer*, what quantity of blood he usually abstracted before he found an alteration of the pulse.

Mr. Fryer said six or seven quarts, but he had seen as much as two gallons taken away before the required result was produced.

Mr. Goodwyn asked whether cows of a plethoric habit, or those in moderate condition, bore depletion best.

Mr. Fryer replied, those in moderate condition.

Mr. Wardle said he had seen several cases. His father was always in the habit of administering digitalis combined with sulphate of magnesia; he also applied setons to the side. As a digestive he had used simply turpentine ointment, and that produced suppuration in forty-eight hours.

In reply to a question from *Mr. Twinberrow*, *Mr. Fryer* said it was always by the suppurative process that wounds in cattle were healed. He could not account for it, but this was really the case. He then went on to describe several cases of the disease which had come under his notice a short time ago. In one case a farrier had been in attendance previously, who had first bled and purged the animal, and afterwards administered bark. He found the cow in a very dangerous state. He immediately ordered this treatment to be abandoned, and in a few days the cow recovered. In the course of six months she was again attacked. She was bled; two quarts only had been taken away, when she dropped down dead. To use the words of the farmer, "the cow's lungs were gone to nothing."

FEBRUARY 23, 1841.

Mr. MORGAN, V.P., in the chair.

Mr. LITT read the following paper on

THE PHYSIOLOGY AND PATHOLOGY OF THE HOCK JOINT.

Gentlemen,—The subject which I am about to introduce to your notice to-night is one of even more than ordinary interest—the structure and diseases of the most complex joint in the animal frame: I trust, therefore, that you will allow the importance of the subject to excuse, in some measure, the imperfections which follow, and hear me patiently to the end.

I shall occupy comparatively little of your attention by the first division of my subject, partly because I know that most of

you are quite as well acquainted with it as myself; and partly because minute anatomical details—however beautiful as illustrative of the wisdom and design of our common Parent—seldom fail to become tedious when they form a prominent part of the papers read before this meeting, since they offer but little food for discussion.

The *tarsus* or hock of the horse is that part which answers to the ankle or instep of man, and is composed of six bones in that animal—the navicular bone, which forms part of the tarsus in some animals, being situated at a considerable distance from that joint in those whose phalanges are elongated in proportion as the femur is shortened. Of the relative arrangement of these bones I shall say but little, for, indeed, little needs be said: you are all familiar with it. Suffice it for me to remark, that the principal motion of the joint is carried on between the lower surface of the *tibia* and the upper one of the *astragalus*; and that the other osseous constituents of the joints serve either for the attachment of muscular expansions, or cushions to receive and transmit the weight of the animal without attrition or concussion. And what, I would ask, can be more beautifully adapted to the former function than the elongated process of the *calcaneum*, so admirably constructed to afford additional strength, as well as a mechanical power of leverage, by which is saved an immense expenditure of vital energy, while a sufficient velocity is preserved? Or what could contribute to the latter function so well as those beautiful solid pads, made up of a dense filagree of osseous matter, and coated with cartilage, which we term the cuneiform bones?

I have spoken of the *tibia* as the bone which articulates with the first of the tarsal tier; and it may be necessary to mention also that the bones which receive the superincumbent weight from the tarsus are those answering to the first phalanx of the foot of man, and which are called the *metatarsal* or shank bones. They are three in number, and articulate above with the *cuboid* and *cuneiformia medium* and *parvum*. It is farther worthy of remark, as will be seen hereafter, in a pathological as well as physiological point of view, that the last mentioned—the *cuneiforme parvum*—rests almost entirely upon the inner small metatarsal bone. The cause of this provision is obvious. Owing to its greater proximity to the centre of gravity, it was necessary that it should possess a higher degree of elasticity; and this power—the cartilago-ligamentous connexion of the inner with the large metatarsus—was admirably calculated to afford.

A word or two more on animal mechanics. There is nothing more striking, insomuch as regards their speed and elasticity, in the structure of the extremities of the lower animals, than their

angular disposition. In the horse we have this arrangement both in the fore and hind legs; but, that the body may be perfectly balanced, it was necessary that these angles should be opposed to each other, and accordingly we find such to be the case. The fore extremities, however, are intended to be the principal supporters of the animal's weight, and consequently the angles are less numerous here than behind; for, had it been otherwise, an immense additional quantum of muscular power would have been called for, at the same time that the desideratum of nature, namely, a mechanical prop, would have been but imperfectly fulfilled. Not so, however, in the hind legs. They are organs principally of progression, and therefore each joint has an angle by which elasticity is secured at the same time that the muscular power necessary for its support is also called into action in the movements of the mighty machine. But here I find myself entering upon a path of inquiry which, however beautiful may be the flowers with which it is strewed, is certainly not the direct one to the goal at which I am aiming; and, therefore, I will quit this part of my subject, merely remarking that the component parts of the hock are not arranged perpendicularly to the tibia, but form an obtuse angle with that bone.

Besides the fascia, cellular membrane, and skin, which are rendered tight and dense over the hock, we have another provision for fixing the bones in their relative situations in that dense, fibrous, inelastic material which is termed ligament. The ligaments of the hock are numerous as well as powerful, and they are so powerful that luxation is almost an impossibility. They serve also to bind down the tendons which proceed over the joints, and thus the hock is moved at every contraction of the muscles whose expansions proceed over this part.

There are two muscles which ought never to be omitted when enumerating the peculiarities of the hock, for they are intimately connected with it: I allude to the *gastrocnemius externus*, and the *flexor metatarsi*. The latter rises from the external condyle of the femur and the tibia, becomes tendinous above the hock, and bifurcates in front of the joint, one portion going to be inserted into the large metatarsal bone, and the other passing directly over the cuneiform parvum to be inserted into the inner metatarsal. The *gastrocnemius externus* is the muscle whose tendon is inserted into the point of the os calcis. In addition to these, the tendons of five other muscles pass over the tarsus.

The hock derives its sensation from three different nerves—the first and third popliteal, and the terminating branch of the crural. Its bloodvessels are the anterior and posterior tibial arteries, and the veins of the same name. The anterior tibial arteries and viens run in front of the joint.

Turn we now to the diseases. Looking at the beautiful complexity of the structure which has been described, and then turning to the less pleasing contemplation of the extremely artificial lives of our patients, the unnatural exertions which they are called upon to perform, and the manner in which disease is perpetuated by our systems of breeding, is it to be wondered at that the hock should so frequently become the seat of serious diseases, or that these diseases should vary so much in their external characters? Numerous, however, as they may appear to be, we shall have no difficulty in arranging them under three heads; namely, *bursal and synovial diseases, exostoses, and sprains.*

Of the *bursæ mucosæ* I need scarcely speak. You all know them to be those little vascular bags, enveloping tendons, &c. at particular parts, and secreting a semi-oleaginous fluid-synovia, by which they are allowed to play over other structures without friction or any unpleasant consequences. During inordinate or even natural exertions, in proportion to the demand for the lubricating agent, this secretion is increased; but it not unfrequently happens that inflammation is set up in the inner surface of these vesicles, and the fluid is deposited more rapidly than the absorbents can remove it. Hence the bags become distended, and soft fluctuating tumours are formed, to which we attach the names *capped-hock, thorough-pin, bog-spavin, or windgall*, according, generally, to their situations. Bursal enlargements, then, are the effect, for the most part, of hard work; but I would suggest that they are not invariably so, as I have seen them in very young horses that have worked but little. I believe, therefore, that certain animals may, from peculiar configurations, or the like, be hereditarily predisposed to them, and that they are sometimes also, as in *capped-hock*, the result of external injuries.

Bog-spavin, thorough-pin, and capped hock are the three bursal diseases of which I shall speak, for they are all connected with my subject. The terms are somewhat inelegant, and certainly any thing but expressive; but you understand what is meant by them, and therefore I shall not trouble you, as some writers have done, by curious or learned researches into their derivations. I am not virtuoso enough to feel interested in such things.

The first-mentioned of these is peculiarly interesting from its being associated with another disease, namely, *blood-spavin*—so called because it is a varix of the vein which runs in front of the hock produced by the mechanical pressure of the enlarged bursa, or, in other words, the *bog-spavin*.

The treatment of bursal enlargements is extremely simple. When recent, a refrigerant or discutient lotion will be sufficient. As they are seldom, however, attended with lameness, we are

merely called upon to remove them as blemishes, when they have become chronic. Bandaging and rest, when practicable, will effect this; but more active measures will generally be required from us. The absorbents are to be called into increased action, and therefore blisters and stimulants suggest themselves. The deuto-ioduret of mercury is here an invaluable application. As a last resort, however, a seton over the surface of the tumour, between it and the skin, will speedily and most effectually remove it. It is the practice with some individuals to fire in these cases, and it is generally effective; but I cannot help considering it an unnecessary cruelty.

Judging merely from the character and appearance of bursal tumours, the tyro would naturally enough ask why we do not puncture them. I admit that there may be cases in which such an operation might be necessary; but it should be performed by a highly scientific man, and even he should prepare himself for the consequences, for they are sometimes of the most alarming character.

I would here remark, that I cannot help considering the manner in which some surgeons dispel these tumours in the human subject—namely, *bursting the sac by a sharp blow without rupturing the skin*—worthy of a trial in our own patients.

It has been said, that the consequences of open synovial capsules are often alarming. Who can doubt the fact?

This brings me to what is commonly called open joint, a disease serious at all times and in all places, and never more so than in the hock, where it is not unfrequently the consequence of kicks and punctures. No sooner has the veterinary surgeon satisfied himself of the discharge of the synovial fluid, than he prepares himself for, at best, a tedious and unpleasant job. The exposure of, and consequent admission of air into, these all-important cavities is soon productive of a high degree of febrile excitement, enough indeed, in some cases, to destroy the sufferer; and therefore their closure is one of the first things to be attempted. Fomentations, cleansing, physicking, &c. must not, however, be neglected. The means had recourse to in these cases are numerous, and every one has his favourite remedy. Those which I am about to advocate will have, at least, their simplicity to recommend them. If the lips of the wound cannot be entirely approximated, or, if approximated, do not unite under the ordinary traumatic applications, which, if the fever is properly combatted, they will frequently do, I then make use of the powder of alum, sprinkling, or rather plastering, it over the open surface, bandaging it up, and repeating the application every second day until the discharge of synovia ceases.

For the purpose of combatting the symptomatic fever—purgation having been produced—the judicious administration of opium

with calomel will be found without a rival. The sedative effects of the one and the alterative effects of the other will work wonders. When the pain of the wound is intense, a solution of the crude opium may also be used as a local application will benefit.

Sometimes, however, in spite of all that has been done, the synovia will continue to discharge, and the wound will enlarge and present the appearance of an extremely unhealthy ulcer. The case seems then, indeed, desperate; but we must not despair. The powder of quick-lime—the limestone burnt until it is deprived of every particle of carbonic acid—may yet heal it up. It is an invaluable agent, and should be applied daily*. We must not, however, sit down contented that the cure is performed when the wound is healed. The hock may swell, and in spite of our lotions and fomentations, continue to do so again and again, until a fresh outlet for the fluid is gained. Suspicions may then be entertained of deep-seated mischief; and it will become a question with the surgeon, how far further treatment is likely to be available, or with the owner, whether or not the patient is worth additional trouble and expense.

I now approach the most interesting part of my subject. *Spavin* is a disease that we are, most of us, well acquainted with. It is an exostosis on the lower and inner surface of the hock; sometimes so small as to require the experienced eye of the veterinarian to detect it, and sometimes of immense magnitude. It is said to have its origin in the cartilago-ligamentous union between the metatarsal bones, where ossific matter is first deposited, by which the elasticity of the inner metatarsal is destroyed, and a degree of concussion communicated to the joint generally, but to the inner surface of it in particular. Inflammation, synovial or periosteal, or both, is the consequence, and exostosis and ankylosis to a greater or less degree invariably supervene.

But spavin does not always appear at the lower surface of the joint. We have also what is called high bone-spavin. The theory of this disease, as pointed out by Mr. Goodwin several years ago, in the then existing Association, is somewhat different. It is the result of inflammation first excited between the cuneiform bones themselves, and is a more serious affair than the other.

The causes of spavin are generally set down as inordinate exertion, over-weighting, &c. But we must not stop here. Horses

* The profession is indebted to Mr. Stephens, of Newmarket, for the introduction of this agent into the veterinary pharmacy; and I have great pleasure in thus giving testimony to its efficacy. The remedy, however, is a very old one; for I discovered by accident, last summer, that it was the favourite application of one of the most noted practitioners in the north of England, albeit one of the old school; and, what is still more curious, I find, on a reference to the ancient veterinarians, that Laurentius Rhusius, in his "*Hippiatria*," mentions it in the following passage:—"Ad ulcera desiccanda fac tale unguentum, Recipe calcis vivæ, piperis, sulphuris, nitri, & lactis anabulæ, & hæc omnia conficiatur cum oleo communi, hoc unguentum ulcera desiccat et ea consolidat."—W. L.

with badly shaped hocks are peculiarly subject to spavin, and hereditary predisposition has much, very much to do with their formation. I have myself seen young animals that had never done an hour's work "come up" with spavins larger than a nut; and I have it on the authority of several gentlemen of extensive practical acquirements, that they have frequently seen foals born with spavins.

The modes of treating spavin are numerous; but here also I am about to advocate an extremely simple practice. The operation which I recommend is as follows:—An incision should be made a little below the exostosis, and the cellular membrane between the skin and the enlargement carefully separated: a piece of tow or lint, smeared with some strong digestive, must then be introduced into the wound, and suppuration carried on until the tumour is reduced. This system of rowelling—for it is, in fact, a species of rowel—I much prefer to the common modes of blistering, setoning, firing, &c. It is much more efficacious than the first of these, and leaves less blemish than either of the latter. More than this, *I object to the plan of exciting a high degree of inflammatory action over the entire surface of a joint already predisposed to disease*, as is done by the seton and firing-iron, *for the removal of a part which, in many cases, is scarcely an inch in diameter*. In high spavin, or where nearly every bone of the joint is diseased, of course the case is different, and more active measures will be necessary. All we can then do, is to remove pain at the expense of an ankylosed joint; and the more active our measures the better; for in proportion to the degree of inflammation excited, will be the length of time taken to complete the ankylosis. This is the cause of the success of the barbarous practice of punching and boring the hocks with hot irons, pursued by some farriers even at the present day.

Occult hock lamenesses are not uncommon. When a horse is exceedingly lame, and there are no marks to account for it in any other part of the limb, we shall be right, in nine cases out of ten, in looking upon the hock as the part affected. It is ulceration of the synovial cartilaginous extremities of the bones, most commonly, according to Mr. Spooner, of Southampton, between the articulations of the tibia and astragalus. Counter-irritants in such cases are the best remedies.

Sprain of the hock, generally, is by no means uncommon. It is indicated by more or less lameness, tumefaction, and heat. Rest, evaporating lotions, bleeding from the vena saphena, and a dose of aloes, will set all right.

But by far the most common form of this affection is that sprain of the theca of the flexor tendons which is termed a curb. As I have nothing new to say respecting it, I shall be very brief, for you are already becoming tired. In the first stages a high-heeled shoe being placed on the patient, the antiphlogistic treatment

just mentioned will be indicated; but when the disease has become chronic, the deuto-ioduret of mercury is a valuable application. During the summer vacation, I prepared some of this drug for one or two veterinary surgeons in the North of England, and they all speak of it, in cases of curb, in terms of high commendation.

I have once or twice hinted, in the course of these pages, that peculiar configuration predisposes to disease. The hock should be selected broad and strong, and the leg should not deviate, laterally, from the perpendicular. When the hocks approach each other, and the feet are thrown out, the animal is said to be cat, cow, or sickle-hocked. Such horses should be rejected, although they are said to be, mostly, swift ones, a fact which Mr. Youatt has explained on mechanical principles.

A highly intelligent gentleman, at present resident in the Canadas, whom I have the honour to rank in the list of my friends, and with whom I have had some correspondence on the peculiarities of North American horses, states in one of his letters, that the "Canadian horse, although invariably ewe-necked and cow-hocked, is swift in his paces, and trots like the wind; but"—mark the sequel of the sentence!—"but," continues he, "curbs, spavins, and thorough-pins are as plentiful as blackberries." Comment is unnecessary.

Gentlemen, I have done. Some of you will have considered me tedious, and others will be inclined to say that I have scarcely done justice to my subject. To the former class of individuals I would say that the importance of the theme ought to excuse any tedium in the paper itself; and to the latter, I would hint the impossibility of compressing into a few pages matter enough to fill a volume. I have omitted, as much as possible, hacknied and common-place observations, and copied not a line from any one publication. Nor have I sacrificed truth at the shrine of originality. I have recommended no modes of treatment but such as I know to have been sanctioned by experience. For many of the observations which I have made, I have great pleasure in confessing myself indebted to the conversation of several gentlemen whose attainments are vastly superior to my own; and, indeed, you will, I doubt not, have recognized a few of them as the opinions of our esteemed President. Valuable observations, however, like truth, suffer not by transplanting; and I am pleased to have an opportunity of giving increased publicity to them. In conclusion, allow me to say, that I have chosen a subject thus comprehensive, that there might be no lack of discussion, and with the hope of being enabled to infuse into this meeting some of its former spirit. I trust, therefore, that you will each and all of you honour me with your remarks.

The discussion of this paper was commenced by numerous *anatomical* questions being put to Mr. Litt by different members, which were answered by that gentleman in a very clear and satisfactory manner; after this

Mr. Cook observed, that Mr. Litt had stated, and very correctly, that one division of the tendon of the flexor metatarsi muscle passed immediately over the seat of spavin in its course to be inserted into the head of the inner metatarsal bone. Was it not likely that the pressure of the exostosis upon this tendon might be productive of considerable pain and inconvenience to the animal; and, if so, would not a division of it be attended with beneficial result?

Mr. Litt stated, that he should be very cautious about the performance of any such operation. There were numerous objections to it. In the first place, he could not bring himself to be of opinion that mere pressure upon the tendon alluded to was the cause of any inconvenience whatever to the animal. Tendons, he need scarcely say, were possessed of but a slight degree of organization—less even than bone itself; and such was the arrangement of the nerves in those structures, that, while they remained in a state of health, they did not seem at all sensitive to any thing short of inordinate tension. Besides, he had never found any appearance of disease of the tendon alluded to in those spavined horses which he had examined post-mortem; and, moreover, the fact that the degree of lameness evinced was not always commensurate with the size of the exostosis was another and a conclusive proof of the incorrectness of Mr. Cook's opinion. But, even admitting that gentleman to be in the right here, he (*Mr. Litt*) was still of opinion that the suggested operation was a very dangerous one. The danger of opening a bursal cavity, the slowness of reproduction in tendinous structures, and the subsequent alteration which might take place in the animal's gait, were all strong objections; and we ought not rashly to have recourse to it.

Mr. Fisher quite coincided with Mr. Litt's remarks. He thought, also, that if the tendon were to be once divided, it would never afterwards resume its natural functions.

Mr. Williams observed, that, in the part of the country from which he came, the farriers of the old school always attempted the eradication of spavin by the application of a very powerful caustic, the effect of which was to slough away what was by them termed *the spavin*, but what he considered to be in reality a portion of tendinous structure. By this means the lameness was frequently relieved.

Mr. Fryer begged to ask Mr. Litt whether he had ever seen the vein punctured in blood spavin.

Mr. Litt had not.

Mr. Fryer thought that by opening the vein and liberating the blood, they would afford a temporary relief. Suppose a vein were taken up, what would be the result?

Mr. Litt.—Such an operation as Mr. Fryer has alluded to had been recommended in very extreme cases, but in them alone; and he should hesitate before he had recourse to it.

Mr. Wills would ask Mr. Litt whether he was of opinion that, in the case of a blood spavin, there was distention of the vein caused by the enlargement of the bursæ?

Mr. Litt thought that distention of the bursæ would doubtless give rise to varicosity.

Mr. Wills had seen a displacement of the vein produced by the enlargement of the bursæ; but he did not think that in one case in a hundred the vein was enlarged. He had, however, seen it dissected out by a farrier, prior to his having joined the profession.

Mr. Cook believed that the lameness and pain of spavin were referrible to concussion. He would ask *Mr. Litt*, if he conceived that any benefit, in such a case, would arise from a division of the first popliteal nerve?

Mr. Litt had understood that the operation had been performed: it had been put to the test by a gentleman who was at that moment in the theatre and would doubtless communicate the result of his experiment to the members. For himself, he did not think that any benefit would be derived from the operation. There were, in fact, no less than three nerves of sensation to be traced to the hock.

Mr. Sayer had performed this operation, and so had *Mr. Spooner*. At first it seemed to be attended with benefit; but it ultimately proved to be of little or no advantage.

Mr. Samuel Fisher had listened with great pleasure to the reading of *Mr. Litt's* Essay, and he thought it certainly contained much interesting matter for discussion, and something even of novelty. One subject which had been but little noticed by veterinary authors, although of high importance, he was happy to find had been broached by *Mr. Litt*. He alluded to the hereditary predisposition existing in some animals to take on those diseases which terminate in the deposit of ossific matter, and which are the terror of the sportsman. His own experience, which had been somewhat considerable, in the breeding of hunters, might enable him to say much in corroboration of the statements made by the author of the Essay. This was a point of the utmost importance, and, if properly discussed and considered, might be productive of much benefit to breeders of horses, by enabling them to obviate disease by precautionary measures.

MARCH 2, 1841.

The PRESIDENT in the chair.

Messrs. Loader, Powell and Taylor, Students, were elected Members.

The following communication from *Mr. FRANCIS CUPISS*, of Diss, was read.

To Mr. W. J. T. Morton.

Dear Sir,

I forwarded this morning, by the Norwich Phenomenon coach, a small box, containing the larynx and trachea of a horse; not so much for the unusual nature of the disease with which the parts are affected, as the particular seat of the abscess that was the immediate cause of suffocation and death. It may also, perhaps, interest the members of our Medical Association to witness the diversified forms under which the same disease will attack various parts of the animal body. The circumstances attending this case were simply

as follows:—The patient was a cart mare, and on Friday last was sent with other horses a journey of about twenty miles. She was taken unwell on the road. She was bled, and had a ball given to her. On reaching home she was attended by a respectable practitioner of this town, who on visiting the case considered it “a bad sore throat,” and treated it accordingly. On Sunday she appeared better; but when he visited the mare on Tuesday morning, he found her much worse, with so much difficulty of breathing that he thought her in great danger, and, at the request of the proprietor, I was called in. On my seeing the case, I found that her breathing was really so distressing, that unless immediate relief could be afforded she would be dead in a short time; and considering there might be some enlargement about the epiglottis, I proposed the operation of tracheotomy, which being assented to, I immediately performed it; but to my great surprise and disappointment, it only relieved the passage of air through the nose, the respiration otherwise remaining equally painful. This led me to suppose that something must have got down the trachea, or that the membrane lining the bronchial tubes was in a high state of inflammation. Our conjectures, however, were soon at an end; for the animal died in about half an hour after the operation. On the post-mortem examination I found the larynx and trachea in a high state of inflammation, as you will see, which extended all along the inner membrane of the trachea and bronchial tubes; but the immediate cause of the difficult respiration, and, ultimately, of suffocation, was an abscess which had been formed between the membrane and cartilaginous rings, about an inch before the trachea enters the chest. On its breaking, suffocation was the consequence, for on opening the trachea, it contained a very considerable quantity of matter. Should the above hasty description of one of the terminations of a bad sore throat, as it was supposed to be till within a few hours of death, be thought worthy of five minutes’ attention by the Association, I shall feel gratified at having laid it before them; and I must offer my numerous engagements as an apology for not dressing the case up in more professional attire.

I remain, &c.

The President said, that the remarkable specimen before him was one shewing the existence of an abscess between the internal lining membrane of the trachea and its cartilaginous rings at the entrance of this tube into the chest. He looked upon this as a very interesting case. However, he might be permitted to say, it was not by any means an uncommon case, because he had

met with several of them, and in nearly every instance fatal results had followed. There was first observed a laryngeal inflammation, which, extending down the chest, involved the bronchial tubes. They were all aware that when they had inflammation of this kind, they had oftentimes a formidable enemy to combat.

The indications of the formation of an abscess within the trachea are obscure; but when without, and in the surrounding cellular tissue, it may be detected by swelling, and the ordinary concomitants, and the usual methods may be resorted to for affording relief. It should also be remembered, that in this instance, from the nature of the contiguous parts, the abscess could not make its way towards the surface, cartilage not being so much under the influence of the absorbents as softer parts. We have, therefore, to apprehend the bursting of the abscess, and, its contents being poured upon such important organs as the lungs, suffocation and death would be the inevitable consequence. If it could have been suspected that an abscess had existed in this case, it might have been opened, by making an incision through the rings of the trachea, thus effecting a discharge of the imprisoned pus. But it was very probable that there had been such an extent of inflammatory action arising from the pressure of the abscess, as would have caused death, independent of its bursting. He had had an opportunity, two years since, of seeing a similar case to this, when on a visit to a friend. A grey mare was brought out of the stable for him to see. He observed that a tumour had formed at the lower part of the neck, which had been punctured once or twice, but without any discharge of pus taking place. However, the patient was apparently doing well. On the following morning, to his surprise, he was informed that she had died during the night. On a post-mortem examination, it was found that an abscess like the one before them had formed within the windpipe. Punctures had been made in it, it was true, but not deep enough, and the result was, that the animal died from suffocation. It was, therefore, of the utmost importance that the members should make themselves cognizant of what was going on in this as well as every other organ. Under such circumstances the ear might be successfully resorted to, applying it carefully up and down the trachea, until the cause of obstruction was detected. Possibly objection might be raised from the difficulty that exists in knowing whether the impeding body is an abscess that is forming, or a tumour merely. He thought the practised ear would be enabled to distinguish the one from the other; but in case it did not, an operation in both instances would be called for, and, consequently, he should not hesitate to perform it. He did not here speak theoretically merely,

for an opportunity was once offered him of putting it to the test, the result of which was a successful termination of the case. Of course, if the abscess was seated lower down the windpipe, when it had entered the chest, then this method would be ineffectual, and we must allow the disease to take its course. His remarks would apply to cases similar to the one before them; and the Association was much indebted to Mr. Cupiss for his kindness in forwarding this specimen to them.

The brain and spinal marrow of a horse that had died of HYDROCEPHALUS in the infirmary were then laid upon the table, when

The President again rose, and said, that the subject of the remarks he was now about to offer was a horse that most of the members had, doubtlessly, seen previous to death. It was a brown gelding, the property of Sir W. Pepys, admitted into the infirmary on Thursday week last. The statement he had received, when the animal was brought to the College, was, that he had had an attack of influenza; but the febrile symptoms which usually are attendant upon that epidemic had passed away. Subsequently he manifested a degree of stupor which continued to increase until, at length, all consciousness at times seemed to be lost. He would throw his head on one side, and keep it in that position for a length of time. Partial loss of vision was experienced, and the pulse was remarkably slow, irregular, and feeble; sometimes not beating more than twenty in the minute, but becoming accelerated in his endeavours to regain the standing position after he had fallen in a state of coma. There were also other symptoms present of a highly unfavourable character.

Previous to his admission, the animal had been under the care of Mr. T. Turner, of Croydon, who had stated to him his conviction that effusion had taken place into the ventricles of the brain, or, if such a result had not yet arrived, it most certainly would.

This being in perfect consonance with his own opinion, he adopted such measures as, from time to time, appeared requisite. The termination, however, being, as was anticipated, fatal, proof was given of the correctness of the views which both Mr. Turner and himself had taken. The brain and spinal marrow were before them; the other viscera they had seen elsewhere, and which they knew presented nothing remarkable. His duty therefore would be, merely to point out such morbid lesions as had taken place in these parts.

The meninges of the brain do not present any abnormal change, but an universal prominence is perceptible on the anterior surface of each of the cerebral hemispheres, which on being cut into is

found to depend upon an accumulation of fluid in the lateral ventricles: the quantity being considerable, it has by its pressure occasioned much alteration in the parietes and contents of these cavities, the former being thinned, presents the appearance of an inflated hollow viscus. The septum lucidum is also detached from its connexion with the corpus callosum, thus allowing of a free communication between the two cavities. The corpora striata and fornix are in a great measure absorbed, while the plexus choroides are somewhat enlarged and granular on their surfaces, and present an unusually pallid hue.

The passages leading out of the lateral ventricles, and the third and fourth ventricles, together with the olfactory sinuses, are distended with the same fluid.

The substance of the brain itself appears a little paler in colour than natural, its texture being unaltered.

It may, perhaps, be worthy of notice, that, while the membrane lining the cavities has taken on this diseased action and secreted such an immense quantity of sero-sanguineous fluid, there are no indications of disease existing, either structural or functional, in the arachnoid tunic investing the outer surface of the brain.

The Secretary said, that in a conversation he had with Mr. Tills, of Windsor, a short time since, he informed him that he had seen the operation of subcutaneous periosteotomy for a severe case of spavin successfully performed. This being then new to him, he ventured to request a detailed account of the case for the Association. To the honour of Mr. Tills be it said, he refused him, on the grounds that it was from Mr. Moulden he first obtained a knowledge of the value of this operation on the hock, and he thought to Mr. M. was due the merit of its introduction.

Mr. Moulden being well known to the Secretary, he did not hesitate to write to him, and from him obtained a promise that, when a fitting opportunity presented itself, he should be happy to communicate to the members of the Association the particulars of the cases for which he had successfully had recourse to this operation. Mr. Moulden was kindly present this evening, to fulfil his promise; from him he had no doubt a lucid account would be obtained, and for which the Association must feel itself indebted.

The following letter was subsequently received, but is introduced here for the sake of connexion and entirety.

Mortlake, May 18, 1841.

Dear Sir,—Understanding that some illustrative cases of the benefits resulting from the operation of subcutaneous perioste-

tomy, performed over the hock joint for spavin, have been lately introduced into the Association by Mr. Moulden, I beg to subjoin two that have fallen to my lot to perform. They are as follows:—

CASE I.—A brown gelding, six years old, was admitted into my infirmary in the month of August 1836, with a spavin in the near hock, and so lame as to be unable to perform his daily labour. Having made up my mind to try what effect subcutaneous periosteotomy would have on it, the animal was cast in the usual way, and the operation performed. The seton was kept in about a month, and was dressed daily with turpentine ointment. After removing the seton, I applied a blister over the surface. He was in my infirmary about two months, and went out perfectly sound, and is at work at the present time: in fact, I have lately seen him several times when performing his daily labour.

CASE II.—A chesnut mare, eight years old, was admitted into my infirmary in the month of April 1837, with spavins in both hocks, and excessively lame with them. I had the animal cast in the usual way, and performed subcutaneous periosteotomy: in this case also, as in the other, it had the desired effect. The seton was also kept in about a month, and daily dressed; and, after removing the seton, I applied a blister over the integument covering each spavin. The animal was turned out to grass for a short period afterwards, and came up sound, and is at work at the present time.

These are the only two cases in which I have had recourse to this operation; and I am of opinion that it is one worthy of a trial in recent cases of lameness in the hock, and will be of benefit to the profession.

I am, &c.

The consideration of Mr. Litt's Essay was then resumed

ON THE DISEASES OF THE HOCK.

Mr. Moulden stated that he had obeyed the call of their worthy Secretary with the greatest pleasure. With regard to the treatment of certain diseases of the hock joint, he had for years condemned the application of the actual cautery as nearly worthless in some instances, and as inflicting extreme punishment in others, while in very many cases it failed altogether. A case had been brought to him of a horse having a spavin, which had belonged

to a butcher, and who, having applied to a veterinary surgeon who recommended the application of the actual cautery, it was resorted to; but as the animal did not recover from his lameness, the owner came to him, and stated what had been done.

Entertaining a strong objection to the system of cauterizing, he, of course, had condemned the treatment to which the patient had been submitted; and said that if the owner would suffer him to try an operation which had not before been attempted, but in the result of which he had the fullest confidence, he would at once perform it. His consent was immediately granted, and he cast the animal in the usual way.

There was a bony tumour about the size of a large walnut at the seat of spavin, on which account, having made two incisions, one above and the other below the exostosis, in order to divide the cellular connecting tissue, he was obliged to use a small seton needle reversed; he then, with the periosteotomy knife, cut down upon the tumour, and the relief afforded when the animal was allowed to rise was marked. He, of course, had been careful to avoid the capsular ligament.

He then introduced a seton, which he kept in for fourteen days. This occurred five years ago. He had lately seen this horse, and he was as sound as ever.

There was also another, which had been sent to him, belonging to a gentleman living in Watling Street; and to such an extent had the disease of the hock proceeded, by dragging the toe on the ground, that he had cut through the hoof to the very laminae. In this case the operation of subcutaneous periosteotomy was performed, and in three days he was free from lameness. This animal, after working for five or six months, was sold for thirty guineas, and after that for thirty-five guineas. He had also had two other cases under his care of completely ankylosed joints. Upon them he had tried the operation, and they had subsequently been able to work in a cart. Of course, a perfect cure of an ankylosed joint could not be effected. These patients went to work in a week.

So convinced was he of the advantage of this mode of treatment over all others for exostoses, that he should never have recourse to any other.

One more instance he would adduce, and it was the one their Secretary had been made acquainted with. It was a mare that belonged to Mr. Thumwood, of Windsor, which had become so bad, that the chances were that death was the only means of affording relief. However, he told Mr. Thumwood, that, if he would try the operation of subcutaneous periosteotomy, he

thought some benefit might ensue. At the time, he must confess he did not altogether expect that the cure would be complete. On going, however, to Ascot races, some time afterwards, he saw the horse at coach-work, and nearly as well as ever.

He had resorted to this operation with the same success in cases of splint under the knee; but as they had nothing to do with this at the present time, he would say no more on this head.

The Secretary asked whether Mr. Moulden had been successful in all the cases in which he had performed the operation?

Mr. Moulden replied in the affirmative, but added, that of course he should select the particular cases on which he would operate, because there were some where it would be not only of no use at all, but absolutely prejudicial.

The President, in answer to a question from Mr. Godwin, said, that on some occasions he had met with inflammation of the synovial lining between the tibia and the astragalus. He had also heard that the cartilage had been lost. He had met with such cases, but they had been very rare indeed. He thought that, in 99 cases out of every 100 of occult hock disease, the seat of the malady existed between the cuneiform bones of the hock joint.

Mr. Godwin had never seen in the race-horse such a disease as that which they had heard the description from their President.

The argument then turned upon open-joints and distended thecæ.

Mr. Litt, in reply to Mr. Turner, said that he had seen cases of open-joint where the actual cautery had been successfully applied.

Mr. Godwin had also seen the actual cautery used in cases of open-joint: indeed, it was a favourite remedy with some practitioners. There was caused by it a diminished passage for the synovia to escape. For himself, he must avow that he should not hesitate about the application of the cautery.

Mr. Moulden observed, that it might succeed, perhaps, where the puncture was only small, and the opening for the exit of synovia was not great. There had been occasions when he had had recourse to it, and sometimes with success; but he decidedly preferred other remedies, particularly astringents, at the same time keeping the limb in a fixed position.

Mr. Sayer believed Mr. Litt, in his paper, spoke of what was termed blood-spavin, or varicose vein of the hock. Now he had examined a hock which had been considered to afford a very severe exemplification of this; but he had not, in that instance, been able to find any enlargement of the vein; at least, it was not more than its natural size—it was nothing more, in fact, than a bursal distention.

Mr. Litt had likewise examined some hocks with the view to discover that appearance of which Mr. Sayer had just spoken, and he had sometimes found them; but it had been referrible, in his opinion, to an enlarged bursa. There were instances, however, and frequent instances too, in which he had found the vein enlarged.

MARCH 9, 1841.

The PRESIDENT in the Chair.

Mr. Pratt, Student, was elected a Member.

The following letter from Mr. Hayes, of Rochdale, was read:—

Rochdale, January 30, 1841.

My dear Sir,—It is with unfeigned pleasure I avail myself of the first opportunity that presents itself—having been lately exceedingly engaged with the present epidemic, influenza—to acknowledge the receipt of your kind communication of the 13th instant, informing me of my being elected a corresponding member of your very excellent Association, which honour, be assured, I duly appreciate; and in return I beg to say, that I shall feel great pleasure in communicating to you, and through you to the Association, from time to time, any interesting cases of disease, &c. that may fall under my notice, tending to advance veterinary science. Yet, certain I am, that there is one evil attendant on this, and which is very much to be regretted: I mean the publication of the methods of cure or treatment of maladies in such plain and comprehensive forms as to be understood by the cattle and horse-keepers' community. Such is no sooner printed than it finds its way directly into the agricultural journals, and is thus disseminated throughout almost every part of the country, and that to the great injury of those members of the veterinary profession who have laboured hard and long to attain a knowledge of their science, and to improve the profession; and we all know that it has cost much anxious toil to wrest it from the hands of the unskilful and ignorant pretender—in fact, to make it worth pursuing. As illustrative of this, I would instance the late—I have no doubt well meant, but impolitic and unwise—act, the account of the late epidemic in cattle, sent by our eminent professor Mr. Sewell to the Agricultural Society, which a great number of our country brethren have felt the unpleasant and injurious effects of. And not only this, but the pages of our own matchless Journal, our science gleaner and veterinary recorder, *THE VETERINARIAN*, are ransacked, and articles extracted from it and other veterinary works, which immediately find a conspicuous place in some of the publications adverted to, to the very great detriment of the country veterinarian. This I have seen for some time past, and I have anxiously waited for some one to take it up, whose superior pen

could have done justice to what, I think, is a subject of far greater importance than we seem at present aware of. It did not escape the scrutinizing eye of Mr. Youatt: his remarks at the time the "account" appeared do him great credit. I was glad to see them; and I thank him for them. I have no wish to find fault with such benevolent intentions as those under which, I have no doubt, the Professor so acted, where such tend not to the manifest injury of ourselves or others; nor have I any desire to dictate to any one: but my opinion is this,—had Mr. Sewell given the Agricultural Society a description only of the disease, and referred the proprietors of live stock to the nearest veterinary surgeon in their localities for its treatment, it would have been more proper, and, I think, would have served the interests of both parties much better.

You will pardon me for making these remarks, but I do think the consideration of this subject by the Association would not be either unprofitable to its members, or foreign to the objects of the Institution. Although I am debarred by distance from attending your interesting and scientific discussions, yet I feel proud of being a humble member of such a body. And again I beg leave to return you, and, through you, the members, my sincere thanks for the encouraging favour they have recently conferred upon me. Although I cannot promise much, yet what little my few abilities and limited time will permit me to do in the advancement of our common cause shall be done cheerfully, and be always at your command.

Below is a short account of the epidemic among horses, as it has appeared in my practice during the last five months: it consists of only a few loose facts, perhaps jumbled together; but if it contains any points that you may deem worthy of notice, they are at your service, to make what use of them you please.

THE EPIDEMIC, termed INFLUENZA, made its first appearance in this locality about the end of last September, and has continued to rage with great intensity up to the present time, few horses having escaped it. The first symptoms, in the generality of cases, are sudden loss of appetite, much soreness and tenderness of the whole exterior of the frame, but in particular the legs, with swelling thereof; defluxion from one or both eyes, with swelling of the eyelids, and so much so at times as to cause blindness for a day or two; the mouth hot and dry; at the sides and under the tongue will be found patches, the size of a shilling, of a very dark deep red colour, but no vesicles ever appear; the head drooping, as if oppressed by a dull pain; obstruction of the sinuses of the head very apparent; hurried respiration; great reluctance to move; pulse weak, fluttering, and quick, and ranging from about 48 to 84; the temperature of the extremities variable, some hot

and some cold alternately; a soreness of the throat was often present; and in the course of twelve hours from the first indication of the attack a weak and staggering gait comes on.

The duration of the disease is from three to seven days, if proper treatment is pursued; if neglected, it may go on for fourteen days.

My treatment has been simple, but quite successful; so much so, that out of 232 cases that I have attended, I have not lost a single horse, except two, both of which had been treated for ten days, and twice bled by a son of Vulcan. They were just at the point of death when I saw them; in fact, one lived only six hours and the other twelve hours afterwards. I can enumerate twenty-eight horses that have died under these wise men's treatment in this neighbourhood. They called it AN INFLAMMATION, the common and very convenient term for them, and which they uniformly make use of in all cases that end in death. They have not spared the lancet, but bloodlet every patient they have been entrusted with. My plan has been the reverse. I have not abstracted blood in any case, though sometimes I have been almost tempted to do so, being frightened by the thoracic symptoms running so very high, which they will do in some cases. I, however, relied on past experience, and allowed the disease to develop itself, without bleeding; and in all such cases I have seen such a change for the better, and that in the course of a few hours, as would astonish any one who has not adopted the same plan. The treatment I have pursued has consisted in giving a ball every twelve hours, composed of diuretic and diaphoretic agents combined, with a drachm of Cape or Mocha aloes in each ball. In the generality of cases, when three of these balls had been given, I allowed Nature to carry on her own work, leaving her for the space of twenty-four or thirty hours; and if at the end of this time convalescence was not fully established, I repeated the balls, giving two more, one each day, and these have in every case been sufficient.

In some of my first cases I exhibited the medicine in the form of a draught, and also ordered the animal to be drenched with gruel; but finding that, in a day or two, bronchitis came on in almost every case, I began to suspect that the frequent drenching was the principal cause of these severe affections of the respiratory passages. My patients being often affected with sore throat from the first, experienced great difficulty in swallowing these drenches, some part of which, I have no doubt, passed down the trachea, and caused the affection I have just stated. I therefore abandoned the drenching system altogether, both with the medicine and gruel; and I have not had a single case of bron-

chitis since, provided the balls were given at the commencement of the attack ; but in every instance all have done well, and no untoward circumstance has intervened. When sore throat was present, I blistered, and in all cases kept the horse warm with bandages on the legs and plenty of clothing to the body, and allowed my patients to eat and drink just what they evinced an inclination for.

I believe this disease has some analogy, in some of its results, to those cases of rheumatismal inflammation of the synovial membranes of the sessamoid bones so beautifully described by Bouley in *THE VETERINARIAN* for 1840, vol. xiii, page 632. And I am sure every observant practitioner must have seen these affections follow diseases of this kind. I have witnessed several within the last three months. They appear in about fourteen or sixteen days after convalescence.

As it respects the nature of the epidemic, I am of opinion that these miasmo-contagious diseases are parasitical, and partake much of the nature of periodical blights, or the diseases of vegetables, but in a more minute or invisible form ; *e. g.*, the fly, &c. in hops, and rubigo, smut, &c. in wheat, and other plants : in fact, that the material of contagion is composed of organic matter, that is, living matter possessed of individual life, and which stands in relation to the diseased body, whether vegetable or animal, as a parasitic organic being, according to their individual peculiarities. Dr. von Heule, Professor at Berlin, says, "the same epidemic will rage under all circumstances of atmospheric and other physical external conditions." Under this view we are compelled to assume for its cause some poisonous material mixed with the air, and capable of being carried about in it, and separated from it. That the nature of this material is organic, is rendered probable by its power of increasing by the assimilation of foreign substances ; a power which, so far as is yet known, is peculiar to organic beings only. He further says "that fermentation and contagion are analogous in their action ;" that is, the quantity produced bears no relation to the quantity of miasm or ferment employed : thus the propagation of contagion, as do fermentation and putrefaction, depends on the prolific powers of the organic beings in each.

The whole course of these epidemics is marked by peculiarities in regard to time which never occur in diseases from common causes, and such as shew that the cause of the disease is in a regular course of periodical development. This peculiarity also is only known in animated beings. The matter which has been generated by the living body produces a certain disease if applied to another organic body, and constitutes contagion. That diseases of a peculiar kind are common to certain places, as low

damp bogs, &c. such as rheumatism, agues, &c. needs no elucidation of mine. In such places there is constantly going on a decomposition of organic substances, and this decomposition is, in fact, nothing else than the change of organic matter produced by infusoria and minute algæ; so that all putrifying bodies become a breeding-place for these parasitic animals. When great quantities of this organic matter happen to be widely exposed, the whole or parts of the atmosphere must become charged with their germs.

The same means that prevent the formation or destroy these lowest of living beings, also destroy or limit the action of infecting matter. Thus, "oxygen is essential to the well-being of all organic life, and miasmata are destroyed in irrespirable air;" but the ova of infusoria, &c., may live without oxygen, and infection or contagion sometimes remains latent for months, and even years, before it increases to such a degree as to develop itself. In like manner, both infusoria and the parasites of vegetables will remain dry for years, and yet be capable of revival; and so will the matter of contagion.

The parasitic animals which constitute the matter of infection must be looked on as belonging to the lowest, the most minute, and yet the most prolific, of all created beings. In fact, putrefaction is not a mere dissolution or decomposition of a mass of organic matter, but a changing of it, effected by these minute parasites, as the fermentation of vinous and other liquors is an alteration of organic matter by the action or growth of minute vegetables. Now, as the formation of parasites often takes place in the bodies of living insects, and also birds, from these considerations, and the fact being frequently brought before me, that mange and many other contagious diseases to which the higher grades of animals are subject are but the effects of visible parasites, and also from many other phenomena which I daily observe, I am induced to conclude that these epidemic diseases are the effects of infusoria or their ova, dispersed over the whole or part of a country by winds agitating the atmosphere.

I remain, your's, &c.

The Secretary.—Mr. President, I cannot help thinking that Mr. Hayes, in the former part of his communication which I have just read, has touched upon a very important subject; and I agree with him, that it merits the consideration of the members of the Association.

The evil that he complains of, I am sorry to say, is a gradually increasing one. I have watched its progress, and I begin to fear the consequences.

In one of my lucubrations here I was induced to observe "there should be no barriers to the dissemination of [professional] knowledge but those that education raises. Science will plant around the sacred precincts her own bulwarks. She may be subjected to the taunting sneer and the supercilious laugh of the charlatan; but she has nothing to fear from her assailants, if her votaries are but true to her interests and to themselves;" and I am still of the same opinion. It, however, now appears that even these her bulwarks are to be thrown down, and the fair field of science is to be rudely trodden under foot by the wild beasts of the forest. Such ought not to be the case.

The veterinary surgeon has a right to expect to live by his calling; and he feels a pleasing delight, known only to himself, when he has been the means of alleviating the sufferings of any animal on which he may have been called to attend. He has laboured and paid for his knowledge, and it is but just that he should reap the fruits thereof. But how can he hope to do it, if so be private communications are answered, and public circulars are sent forth containing a detailed account of the treatment of diseases in the most familiar language, so that even the uneducated may understand it, and the attendance of the veterinary surgeon be dispensed with? I humbly conceive that there has been much error in judgment here, and it will ultimately prove detrimental to the profession as a body. It is an error of the head, and not of the heart, I feel convinced. I am no stranger to the fact, that it is easy to expatiate on the philanthropy of the act; and to say, that we are called upon to relieve the sufferings of animals placed lower than we are in the scale of creation;—it is our duty to do so: but while I agree with this noble sentiment, I would ask if *every* veterinary surgeon were to tell the community how to treat their animals when diseased, whether they would not, as a body, soon cease to be? Those who have so kindly communicated to the public how to combat and eradicate maladies, may not individually have suffered; but I do know that others have, having received several letters from members of the profession, complaining of it, and I therefore fear that their gain has been at the expense of their brethren. Thus a few luxuriate while the many pine. Such a course of procedure appears to me little short of professional suicide.

The veterinary surgeon is now an acknowledged integral part of the community; he has been weighed in the balance, and his worth is estimated: and he who takes from him the means whereby he lives, might as well take from him his life.

There is yet another view I would take of this subject. This our Association is becoming affected—rather would I say in-

jured—by it. During the present session, the discussions carried on here have lacked their wonted spirit. Now there is no effect without a cause; and in this instance, if I am rightly informed, it is easily traced. The practical members of this Institution are opposed, I am told, to the publishing of modes of cure, for reasons already assigned: and when a subject is introduced for discussion, rather than comment upon it openly here, they retire elsewhere, and among themselves freely canvass the merits and demerits of the question; for they have not the least objection to communicate to each other, and to every member of the profession, all and every thing they know respecting it; but they object to make the public acquainted with that which has cost them time, and money, and labour to gain: they can see no reason why the non-professional public should be instructed by them in those things by the employment of which they live. Now such a course of procedure is fatal to the well-being of this Society; and soon, I fear, if some measure be not introduced to prevent it, the Association will cease to be. Need I add, that such would give me unfeigned sorrow? For I am decidedly of opinion, that the Veterinary Medical Association is among the best means the student possesses for acquiring knowledge; and you will believe me when I say that it has been an object of some little solicitude with me.

Having thus pretty freely spoken my sentiments—which I am in the habit of doing—it will naturally be expected that I offer a remedy for the evil complained of; but, in truth, it is much more easy to find fault than to devise a remedy that is unobjectionable. I would, however, suggest, that members should not hesitate to give us their opinions freely—INDEED I PRAY THEM TO DO SO; for we are now ably supported by the profession, the members of which, from time to time, furnish us with highly important matter, and send morbid parts to us, from which much information is derived; likewise, when any improvements suggest themselves, we are at once made acquainted with them, while our correspondence is now courted by veterinary societies on the Continent; and, on taking a retrospective view of our past proceedings, I think it cannot be said that we have done nothing. Let it not, then, I pray you, be said that having advanced thus far, after having done and gained so much, we were obliged to turn back. Let it not be retorted that in the year 1841, and with such a class as I have the pleasure of seeing before me, we were unable to continue our meetings; that there was manifested a want of interest in the advancement of science, and a bad spirit was engendered amongst us, so that the discussions became “flat, stale, and unprofitable,” and, therefore, the theatre

was closed against us. Again, then, would I earnestly and respectfully entreat members to give us their opinions, and that freely, on the subjects brought before them, but *clothe them in language only understood by the educated and scientific man*, leaving recipes and doses to the empiric. "A word to the wise is sufficient." If this does not prove effectual, I know of but one other plan, and that is *for the profession so to support its Journal, BY SUBSCRIPTIONS, and otherwise, that it may not get into any other hands than those who are members of the profession*. I have thus thrown out some hints: if I have erred in so doing, it is only common to frail humanity, and I know you will pardon me.

The Secretary then read the following letter from Mr. W. Stanley, of Leamington:—

Dear Morton,—I am afraid you will think me negligent in not answering your letter before respecting the hock nerve operation, which Mr. Rose has informed you of my success in the majority of the cases I have operated upon.

The first case I operated upon was a grey gelding, six years old, belonging to a livery-stable keeper. He had been lame for eighteen months, and during the last six months excessively so; so as, in fact, to be useless to his owner. Firing, setons, repeated blisters, and rest, had been resorted to; but all was useless, until the nerve of the near hock was divided in the manner your worthy President, Mr. Spooner, informed me of when here. The animal immediately after the operation trotted perfectly sound, and has continued so, for all I know, up to this time.

He was let out three weeks after the operation to Sir A. Clifford, the Usher of the Black Rod, in whose possession I believe he now is. Sir A. Clifford hired him for three months, after which he purchased him for about £30. He has not left this place above six weeks, and was then perfectly sound.

The lameness was caused, in my opinion, from violent and repeated concussion inflaming the synovial membrane covering the inferior part of the astragalus and cuneiform bones; and which, judging from the degree of lameness, and the time the animal was lame without any relief being afforded, had become thickened, if not ulcerated. There was no exostosis, but there might be perceived a general thickening in the central part of the joint. The horse was offered for £5 previous to the operation.

My first case answering beyond my expectation, it has been a stimulus to me to give the operation every trial I could; and from the success I have had, I shall always, as a last resource, with

the owner's consent, and a case applicable, continue to practise it; for, as yet, only in three instances it has not succeeded in restoring the animal to perfect soundness, and these it has so far relieved as to make them suffer less pain, and perform their work easily. These three were lame from an ossification of the ligaments of the joint, which, from the bony deposit, had become partially ankylosed. But even these, before the operation, were very lame, both at starting on their journey and on returning. As they now are, they start less lame, and after a few minutes they go sound, or hardly perceptibly lame, and do their work well, and thrive in condition. In all the other cases that I have succeeded in making sound, the lameness arose from exostosis on the anterior portion of the cuneiform bones; and they still continue so. All my patients had undergone the usual treatment, viz. firing and blistering, and some had been setoned, and most of them were employed for harness work. In some of them I have observed the bony deposit become absorbed: this I attribute to the action of the diseased part, which, being now free from pain, takes its share of duty.

I have felt surprised at not seeing any account of this operation in the proceedings of the Association. One cannot always be right in his prognosis as to the result, from not knowing how far the disease has made its ravages in the joint by an external view; but those cases are the best for the operation where the exostosis is in the centre of the joint. Has it ever been tried at the College in a case like my first, which is generally known among our fraternity by the term of obscure or occult hock-lameness? I think it particularly adapted for such cases.

It will be borne in mind, that the operation is yet new, and I hope it will be persevered in; for although unsuccessful in some instances, this should not deter us from having recourse to it when it has been known to do good, and no harm. Probably some method might be discovered, so as to enable the veterinary surgeon to select his cases. And it is as well to be circumspect at first; for if you do not succeed, the operation is likely to fall into disrepute.

I fear I shall tire your patience in reading this rude sketch of my practice and observations. I will conclude by giving you the history of a somewhat singular case that has fallen under my notice.

Last week, a bay cart-horse, the property of a miller, was attacked apparently with spasms, for which I treated him in our usual way. The animal not being in such violent pain as some, the paroxysms coming on only at times, I left some medicine, thinking the animal would soon recover. In forty-eight hours I received a message, saying the horse was still in great pain, and

that he had not voided any dung. Upon seeing him, and more minutely investigating the symptoms, I began to fear that there was something wrong going on. He never rolled, and scarcely ever laid down, except for an hour or so in the day: no tympanitis was present, and a bystander would think there was nothing the matter. But there was a peculiar symptom about him I did not like, which was, that he sighed, drew himself up in a heap, and groaned. He continued in this state for six days, during which time I gave him aloes, oil, and croton, with the usual antispasmodics: I likewise bled freely. No fæces were voided for the six days, but on the seventh day he purged, and the owner thought all was going on well: on the following morning, however, he died. On a post-mortem examination, two large calculi were found in the stomach, one weighing above four pounds, the other about five pounds: the latter was wedged in between the duodenum and the pyloric end of the stomach, and thus brought on inflammation and death.

I am your's, &c.

The consideration of Mr. Litt's Thesis was again entered upon.

Mr. Litt begged to offer a few remarks in reference to one part of the paper which he had submitted to the Association. He had said in that paper, that capped hock was a disease of the bursa. Now he owned that he had expressed that opinion without having examined the subject very minutely; and his opinion, he was free to confess, was derived from the fact of Messrs. Blaine, Percivall, and Youatt, having defined the disease as a mere bursal enlargement. But a remark which had fallen from their President on a former evening had led him to make an examination of the matter for himself, when he had found that capped hock was not a mere bursal enlargement. There was an effusion of lymph into the cellular tissue which gave rise to a thickening of the part; and he had also found that the gastrocnemii muscle was likewise enlarged. But that did not constitute the particular enlargement which was termed capped hock. He had thought it but justice to set himself right with the members of the Association upon this point.

In reply to Mr. Greaves, he said that he had examined but very few hocks where there had been a seton applied in which he could not detect a thickening; whilst in cases where the rowel had been used there was very little mark left. He had seen instances wherein this operation had been performed, and he had been unable to detect it afterwards. For his own part, he should recommend the employment of a rowel; to be dressed daily with the ointment of turpentine until the enlargement had disappeared. That treatment might, it was true, occupy several weeks ere its success had been effectually proved.

Mr. Bland.—I have heard, with no small degree of pleasure and of profit, the very valuable paper on the diseases of the hock joint, and their mode of treatment, which has been introduced by Mr. Litt; and I should not be doing that gentleman justice did I not tender my meed of praise in favour of

his talented production: yet, whilst we admire the excellency of the remarks made by Mr. Litt, we must not forget that his paper is introduced to provoke discussion, in order that, by such discussion, truth may be elicited; for in the healing art it is notorious that so many different modes of treatment of disease have obtained, each having its votary or votaries, by whom we are told of successful results, that it is absolutely incumbent upon us to inquire into these diversities of practice, in order that we may judge of their fitness or unfitness for scientific notice. And I have a few short remarks to make upon what Mr. Litt has said with regard to the use of the actual cautery, and of rowels, or rather issues; but, first, with regard to the firing-iron. It must be confessed that we live in times when cruelty to animals is justly reprobated, and it must be also acknowledged that many of us have seen much in the practice of those who consider themselves exceedingly shrewd and cunning in their knowledge of brute medicine and surgery, which at least ought to have harrowed our feelings, without at the same time shewing any extreme degree of delicacy; yet, in spite of all this, we must remember that it is our duty to do all we can for the relief of our patients, even at the cost of temporary torture; and therefore it behoves us to be careful not to cast aside our old friend, the firing-iron, without being fully convinced that we can do very well without it: and whilst I cannot hold with the ditch-like lesions of one of the stars of the profession, and would equally condemn the lady-like marks of the extremely tender, yet so many good results have I witnessed from a judicious application of this agent, that I should be exceedingly loath to discard it from among our list of therapeutic agents. The application of the actual cautery first produces excessive inflammation of the skin, and is therefore an extensive counter-irritant; its secondary effects are said by some to be contraction of the integument, so as to produce an actual bracing or bandage to the diseased part. Now I do think, if we examine the skin some little time after the cautery lesions are healed—say after the horse has resumed his ordinary work—we shall find that, on the opposite side of the joint to that on which the cautery has been applied, there is as much pliability as there was previously to the operation being performed; but that the secondary effects of firing are these; viz. that the pressure over the ossific enlargement produced by the cicatrices left by the firing-iron,—that it is this pressure, acting as a stimulus to the absorbents of the part, which aids in the removal of the deposit. To these remarks I may add, that I have seen several horses very materially relieved in cases of spavin by judicious firing after the seton had in vain been had recourse to. What I would object to in the use of the rowels, or rather issues, of Mr. Litt is this,—that consisting, as they do, of merely a small piece of tow smeared with some digestive application, and only introduced within an incision made in the skin just below the seat of spavin, there would be great difficulty of retaining them in their situation, otherwise they might answer quite as well as setons. But if any application of this kind be commendable, I should certainly prefer the old-fashioned leather rowel, as being much more easily retained in its situation, and, from its size and pressure, contributing to the formation of a more plentiful secretion of pus.

From the early part of the speech of Mr. Moulden, of Egham, on the last night of meeting, I did hope that some new light was about to be thrown upon us, that we might the better see the path that was to lead us to the cure of this opprobrious disease; but must confess myself much disappointed when I found the remedy which Mr. M. recommended was only applicable to splent of the hind leg, and that he did not pretend to say that the treatment would be beneficial when the small bones of the hock had become ankylosed. I have performed the operation of subcutaneous periosteotomy

for splent of the fore leg, and with benefit; but I cannot see how the same operation could be performed behind, without, at the same time, dividing the tendon of the flexor metatarsis internus; and not that alone, but a synovial surface would also be exposed, and a considerable degree of inflammation would be the result.

Mr. Sayer said he had for a long time been anxious to divide the tendon in diseases of the hock, with the view of ascertaining what the effect of such an operation would be. The opportunity for putting this operation to the test at length arrived. The patient, as soon as it had been determined to make the experiment, had been cast, and the tendon was at once divided. The result was successful, and it would afterwards have required the most scrutinizing eye to discover any mark. He considered that the tendon might be divided, not only with impunity, but advantage.

Mr. Fryer would ask, whether this operation, which had been spoken of by *Mr. Sayer*, had been performed for spavin?

Mr. Sayer replied, that it had not been for spavin, but in reference to a cure for spavin. His object had been to ascertain whether the division of the tendon would interfere with the action of the muscle. He had not had an opportunity of performing the operation for spavin.

Mr. Wills saw one objection to the treatment advocated by *Mr. Litt*, namely, the use of the rowel. It would be required to be renewed every other day, and it would appear that they must cast the horse every time. That must either be done, or they must introduce so large a quantity of tow as would be likely to keep up action for a sufficiently long time, which would have the effect of leaving the part very much thickened.

Mr. Litt could not but consider these objections frivolous. He had frequently seen the operation performed with great success. An opening was made nearly large enough to permit of the introduction of the list, which acted somewhat as a mechanical irritant. Performed as he had seen the operation, there was not the least danger. With respect to the approval of the firing-iron, in preference to that of the seton or the rowel, he begged to say that he had deprecated the use of the iron, because he thought that in many cases it was resorted to with a degree of cruelty. He had often seen it applied, and most severely, without any beneficial result whatever. He did not at all approve of the actual cautery for bursal enlargements, but preferred the application of a seton.

Mr. T. W. Mayer had not intended, when he had entered the theatre, to have taken any part in this discussion; but the disease was one of so much importance in itself, and its treatment, of course, equally if not more so, that he was no longer able to abstain.

He felt astonished that so little attention had been paid to this disease by the profession in general; and he hoped to see the day when the numerous terms which were now used to express the disease of the hock joint would be all thrown on one side, and that they should no longer hear of it otherwise than as that which it really was,—an inflammation of certain parts of the hock joint. All the diseases of the hock proceed from one given cause, and that cause is inflammation. If sufficient attention were to be paid to the early appearance of the disease, more active measures would be adopted in the first stages of the attack, and thus a stop would quickly be put to its progress. When this plan had become general, they would then hear no more of exostosis, or of any of the other numerous names which were so abundantly bestowed. Now, he did not think that *Mr. Litt* had advocated sufficiently active means for the treatment of the first stages of spavin. He considered that more attention ought to be paid to the application of fomentations, poultices, and other therapeutic agents. Fomentations and

poultices may be designated active remedies in this disease, if applied in the first instance. The truth is, unless attention was paid in the first stages of this disease, they must expect and look for direful results. With regard to the other remedies spoken of in the Essay, and of their use, he would only offer a few remarks on one of them. In reference to the actual cautery, which was so warmly praised by some practitioners, many supposed that they could not do wrong by applying the actual cautery in all cases of spavin, and therefore they adopted that method without taking into consideration the length of time the spavin had been in existence, or without consulting its state at the period of treatment. Now, if the actual cautery was resorted to, in some cases it was often found to produce just the contrary effect to that which had been desired. It would bring on a more active state of inflammation, and induce exostosis of the joint, attended with unnecessary pain to the patient. He had very frequently seen these effects produced by the injudicious use of the actual cautery, and it had not been until that unnecessarily created inflammation and its effects had been reduced by local depletion and fomentations, that the animal had been at all relieved.

Mr. Ernes had very few observations to make on this able paper of *Mr. Litt's*. In reference to what had just fallen from *Mr. Mayer*, he would say that the best course of treatment in diseases of the hock joint was to endeavour, where it was possible, to subdue the inflammation in the first instance. But it was not always, indeed it was not often, that object could be obtained—a fact which was to be attributed to the progress the disease had made previously to the practitioner being called in. Well, then, it became what was termed chronic inflammation of the hock, and then it was of course necessary that means of a different character should be resorted to, with a view to the reduction of the existing symptoms and appearances of the diseased part. But he should not at all times fly to the iron. He was inclined to think that in many instances,—probably he might say in most, if not in all, cases,—until it was found that a bony substance had formed, that any plan of treatment was of very little effect. He was afraid that the seton and the rowel recommended in the Essay were by far too mild and tardy in their operation, and, when opposed by an active inflammation of the part, would only tend to increase that inflammation. There were those among them who had recommended the division of the tendon in cases of spavin; might he beg to ask what good results those gentlemen anticipated from such an operation? In his opinion, the operation would produce inflammation, the parts would unite again, and they would then have the same effects and the same form of disease as before. He would ask *Mr. Sayer*, who it appeared had tried the experiment, whether he had simply divided the tendon, or obliterated it altogether, and whether the spavin had been got rid of in consequence; or had he taken out a portion.

Mr. Sayer, in reply, begged to inform *Mr. Ernes* that, on a former occasion during the discussion on this subject, he had distinctly stated that, in performing the operation, his object had been to ascertain whether the division of the tendon would interfere with the action of the hock joint, and not with the view of curing the disease alluded to.

Mr. Ernes.—Anticipating that the President will favour the meeting with the result of the experiments he has been performing on the division of the tibial nerve for diseases of the hock, he would merely observe that he had had occasion lately to divide the two plantar nerves of the hind leg, and the time occupied in healing the wounds had been four months, and he thought that, afterwards, the horse had acquired a peculiar gait. Subsequently, also, the lameness returned. He then made a division of the nerves with the view

of ascertaining if an impression which had taken possession of his mind, that the nerve must have re-united, was correct. He, however, found such was not the case; and, therefore, he was compelled to arrive at the conclusion, that the lameness was referrible to something wrong in the upper part of the leg.

The President could have wished that he had not been called upon to give an opinion upon an operation as yet new in veterinary surgery, because his experience of it at present was but limited. They had heard the letter from Mr. Stanley read, and must have been pleased with the successful results that had followed it in his hands. It appeared, at least, that occasionally the operation might be had recourse to with considerable advantage; but he hoped that it would not be carried to an extreme, and then, because in all cases benefit did not result from it, become condemned and discarded. He had before said it was comparatively new, and therefore it was worthy of a trial in certain and selected cases. One fact he had at any rate established, that the division of this nerve, although adjacent to some of the most important muscles of the limb, might be effected not only with perfect safety, but without any fear of rendering the progressive powers of the animal subsequently defective. He, however, proposed to devote more time when the opportunity presented itself to the consideration of this interesting subject; and he hoped at no distant period to be enabled to lay before the members the result of his investigations, and to give a decisive opinion as to the merits of the operation, with the benefits likely to follow its performance.

With respect to the re-union of nerves after division merely, or when a portion has been taken out, he had before observed, that he felt convinced this was effected by the time the wound had cicatrized; but, of course, the transmission of sensation was less perfect when a portion had been removed than otherwise.

MARCH 16, 1841.

Mr. LITT, V.P., in the Chair.

W. Erasmus Wilson, Esq., H.A., presented to the library his "Anatomist's Vade Mecum."

Mr. Cresswell, Student, was elected a Member.

The following Essay, by Mr. FELIX DELANY, was then read :—

ON THE SKIN OF THE HORSE, ITS FUNCTIONS, AND SOME OF ITS DISEASES.

Preparatory to entering on the subject of my Thesis, I beg to solicit your attention and your kindness,—your attention, as the consideration of the subject is important, and your kindness, that you will hear me patiently to the end ; for, although I do not pretend to have any thing new to offer, and may only tell you that with which you are already acquainted, still, if, by renewing the subject, I implant it more firmly in the minds of some of my hearers, some good will be done ; and on that alone I rest my claim for your patience.

That animal bodies should have an external covering to keep in their relative and proper situations the various constituents of which they are composed, was indispensable ; and that this covering should be so constructed as to protect from external changes the more sensitive parts of their frames, was equally requisite. As we are led to inquire how these arrangements are carried out in the various classes of animals, so are we bound to admire the unerring wisdom displayed in allotting to each a covering peculiar to itself, and performing functions adapted to the sphere it was intended to move in.

That Nature intended the skin of the horse for many purposes you are well aware. What these purposes are, and the consequences that result from any thing occurring to interfere with them, I shall endeavour to explain ; but, in the first place, let me call your attention to its structure.

It is composed of three parts—the *cutis vera*, or true skin—the *rete mucosum*—and the *cuticle*, with its appendages, the hair. The *cutis vera* forms the principal part of the skin; it lies next the body, and is divisible into two layers. The deeper one is called the *corium*, the superficial the *papillary*. It is fibrous in its texture, possesses great strength and elasticity, of which I need not adduce any proof, and the fibres run in all directions, forming a sort of network which gives passage to the hairs, and perspiratory and other ducts, of which I shall presently speak.

It covers the entire surface of the body, and is attached to it by cellular tissue, at some places more firmly than at others, as on the face, legs, &c.; but where it would be likely to interfere with motion we find it loose and highly elastic. Again, it differs in density at different parts of the body, as on the inside of the thighs, the lips, and nostrils. Where it is continuous with the mucous membranes it is much finer, and in the latter places it is not covered by hair.

It is extremely vascular—it was necessary that it should be so, to carry on its functions—and is endowed with great sensibility, more so than the muscular parts it covers, of which all must be aware who have witnessed any operation where it was necessary to divide it, by the greater degree of pain evinced when the knife passed through the cutis than through the flesh. And is there not design in this? I think it may be said to act as the outposts to the sensorium, to inform the animal at once when any foreign agent comes in contact with the body that would be injurious to its well being; and to this great degree of sensibility may be traced that sympathy which is known to exist between the skin and other parts, but more particularly the alimentary canal. How often does it inform us that disease has commenced, which would otherwise have escaped notice, until more alarming symptoms appeared? And do we not judge of a horse's health, in a great measure, by the appearance of his coat?

The *rete mucosum* is that expansion of tissue spread over the papillary layer of the cutis, and is the connecting medium between it and the cuticle. On it depends the colour of the skin.

The cuticle, the outer, insensible, or, as it is called, the inorganic part of the skin, covers the entire surface of the body, and is con-

tinuous with the mucous lining membranes. It protects the sensitive parts from the injuries that would result from the contact of external agents, and is pierced by innumerable pores corresponding with those of the cutis for the passage of the hairs and perspiratory and sebaceous ducts. It is best seen after the action of a blister.

The hair is of two kinds—that which covers the body generally, called the coat, and that which forms the mane, tail, &c. The hair of the coat is much the finest, and differs in different breeds. Each hair is said to proceed from a bulb, a small tubular canal placed in the cutis, at the base of which is a soft mass, the pulp, which gives rise to the root and the stem. The colour of the hair depends on a secretion of pigment which takes place in the pulp, and the glossy appearance of the coat, when the animal is in health, is owing to an unctuous fluid discharged into the bulb by small glands. The long hairs found about the eyes and nostrils are of a different structure: they arise from the cellular substance under the cutis, and are tubular, and not improperly termed feelers, as they give timely notice of the approach of any foreign body. Arteries and nerves can be traced to them.

Hair is a non-conductor of heat: and here we see a wise provision of nature to preserve the natural temperature of the body. The coat is shed or cast twice a year when the animal is in a state of nature, which does not regularly occur when he is groomed and stabled. Of the cause of its being shed, I shall say little. It is a law of nature, at the spring and close of the year, to throw off the old coat and assume one better suited to the coming season. During the period of its being shed, the animal requires some additional attention.

The skin is one of the great emunctories of the body: from it is constantly exuding a halitus or vapour that would be injurious to the system, and, if not carried off in this way, should be expelled by some other organ. The perspiratory apparatus consists of a number of glandular bodies placed in the cellular tissue under the cutis, from whence proceed ducts to the surface of the cuticle. They are plentifully supplied with blood, and when this secretion is increased it is called sweat. It is easy to conceive

how disease may be generated, should this important function be impeded. The circulation then becomes charged with an injurious principle, which, if not carried off by the kidneys, the chief emunctories of the body, only waits the exciting cause to bring about disease.

There are other secretions taking place on the surface of the skin at particular parts of the body; as at the bend of the knee, hock, and pastern, where a sebaceous fluid is discharged to lubricate the parts, and prevent the action of friction.

The diseases of the skin are numerous, and to attempt an exact classification of them is not my intention. I shall, therefore, only allude to some of the principal ones, with the treatment and remedies I have seen adopted for their extinction; and I would observe, that some of them are justly termed obstinate and inveterate, as when they arrive at that stage they are generally accompanied by so much disarrangement, either local or constitutional, as to render the most judicious treatment often ineffectual.

It is wonderful to observe how quickly the healing process is brought about in cases of simple wounds of the skin, abrasions, &c. Nature requires little assistance here, further than some mild application to sheath the parts and protect them from external irritation. Should the injury be extensive and attended with much inflammation, of course the treatment would be different, and we should be guided as well by the appearance of the case as by the temperament, constitution of the animal, &c. Where portions of the skin have been removed, the facility with which the adjoining parts stretch to adapt themselves to the loss, is wonderful. I have seen cases where the extent of surface denuded was considerable, yet the surrounding edges of the wound gradually approximated themselves, and ultimately closed it, leaving but a slight cicatrix; of course the progress of the granulations was attended to, and not allowed to extend too far. It would appear that the reproduction of skin cannot be perfectly accomplished, which can be testified in all cases where it has been newly formed: we know how it differs from the original, and how much more susceptible of disease it is. To counteract this inability as much as possible, Nature endowed it with this great power of adaptation; and here I shall speak of another of the endowments of Nature

enjoyed by the horse,—the power he possesses of moving his skin at certain parts of the body by the action of a special muscle, the panniculus carnosus, developed at the lateral parts of the body, to which it is loosely attached by cellular substance, and closely applied to the cutis. The precise points from which it acts, or the great use it is to the animal, I need not tell you of; and this leads me to speak of hide-bound, the application of the term you are all acquainted with. I believe it to be, in all instances, a secondary affection, caused either by poverty, and consequently a lack of the necessary nutriment to the parts; or from disarrangement in the alimentary canal, whereby the existing sympathy is excited, which causes it to assume that tight and corrugated appearance; the treatment, therefore, should be to remove the cause.

Surfeit:—the name of this disease is almost sufficient to explain its nature: it is owing, in most cases, to plethora, combined, perhaps, with the state of the blood. It makes its appearance in small lumps or pimples on the surface of the skin, and may be said to be congestion, and sometimes inflammation of the small bloodvessels. In those pimples where there has been any deposition under the cuticle it peels off, when the process of resolution takes place, bringing with it a portion of the hair. Alteratives are strongly recommended by some in this disease, and, perhaps, with benefit in some cases: physic, with attention to feeding and exercise, are the remedies I have seen employed with success. It is said sometimes to degenerate into mange, but, as I have never seen an instance of it, I cannot speak to the fact.

Mange, that loathsome disease, so unpleasant to treat in all its stages, and requiring so much caution to prevent contagion, seldom appears where cleanliness and regularity are attended to, except by contagion; and it is astonishing how quickly it supervenes when such is the case, proving, I think, that the virus or exciting cause enters the circulation, and that local remedies will not be sufficient to cure it. Those horses that are badly fed and ill-treated are most subject to it. It is said to be owing to a morbid action of the perspiratory apparatus, whereby the perspiration becomes altered in its character, causing irritation and inflammation of the ducts and the adjoining parts; it is also said to

be owing to animalculæ formed under the cuticle: this is very likely, for we know that perspirable matter, if altered in its character or allowed to collect on the surface of the body, will bring to life vermin. There are several kinds of mange described, but I shall only speak of one: it is known by the cuticle coming off in patches, leaving the cutis exposed, from which exudes an unhealthy discharge, and forms a scab. These patches are sometimes confined to particular parts of the body, the head, sides of the neck, &c., but as the disease advances so do they extend: the hair does not come off in all cases.

The specifics, the infallible mange washes, are numerous. I should, in the first instance, direct my attention to the digestive system, which is generally out of order, and next have recourse to local remedies. I would have the parts washed daily with soap and water, so as to remove the scabs; and then apply some oleaginous stimulating embrocation, such as a mixture of tar and oil. Oil of turpentine is sometimes beneficially added: the great object to be attended to is cleanliness. I would give tartar emetic daily, with an occasional tonic, until some amendment shewed itself. I think the various caustic applications recommended are too severe, and often do more harm than good. When the parts assume a healthy character, simple dressings of oil will suffice. I have known tobacco-water succeed when the case was not severe: of course, there are obstinate cases that require other remedies, as well as time, patience, and judgment, to combat them.

Cracked heels:—I mentioned that the bend of the pasterns was lubricated by a secretion from particular glands: this secretion often becomes checked, and the parts crack and inflame from friction. Oleaginous dressings with alterative medicine will often be sufficient. This secretion more frequently becomes increased and altered in its character, and constitutes what is termed grease, producing often great inflammation. The exciting causes are numerous: a sudden change of temperature combined with local or constitutional predisposition will produce it. It is often the result of and often causes swelled legs. Some horses are more subject to it than others, and those with white legs and pasterns are said to be of this class. This we know, that

it is more difficult to cure in them, owing to the radiation of heat from the white surface not being equal to that of a dark one, thereby keeping up the irritation.

Treatment.—When there is simply an increase of the discharge, poultices to cleanse the parts, and reduce any inflammation existing, should be had recourse to, afterward dressing with alum ointment, or some other astringent: a diuretic may be given with benefit. The discharge often becomes fœtid, requiring active antiseptics. Poultices combined with charcoal are beneficial, and should be continued till the inflammation has subsided, taking care to stop any unhealthy granulations that may appear by the application of some caustic. Purgative medicine, with an occasional diuretic, should be administered. When the inflammation is reduced, mild caustics should be applied, such as sulphate of copper, to bring about a healthy action in the parts. The unhealthy granulations sometimes extend, and assume that appearance termed grapes: it then ranks among the inveterates, and the remedies must be according to circumstances.

Gentlemen, I have done. There are many other diseases that I have not alluded to; but have I done justice to those I have introduced? That will be for you to decide. You will not have forgotten my statement at the commencement, that my object was to renew the subject in your minds: if I have done so, and that I am entitled to any consideration on that account, I respectfully claim your opinion and kind consideration.

The author of the Essay, in reply to the inquiry made by Mr. Swinnerton, said, what is called insensible perspiration, is a vapour continually passing off from the surface of the body, being a secretion from very minute ducts or terminations of arteries; and as it respects the effects produced by it upon the animal economy, he believed it to be a means by which plethora of the vascular system is obviated; and further, he conceived Nature to have intended, that in this way the skin should, as it were, act as an outlet to the body; this perspirative matter being injurious to the system if allowed to circulate with the blood throughout the frame. He also thought that if Nature had not devised that means of escape, she would have provided some other organ for that purpose; since this perspiration must, without the power of escape from the system, be injurious to the animal. Besides which, the elimination of this vapour has much to do with the function of respiration; for although the lungs expelled much that is injurious to the system, yet the skin materially aided. The office, then, of this investiture of the body and the lungs may be said to be similar.

Mr. Wills considered a still further use of perspiration was, that by it the

temperature of the body is regulated. A horse by exertion becomes heated, a fluid is then thrown out, which, by evaporation, generates cold, and thus a diminution in the heat of the body is effected, and disease often prevented.

Mr. Greaves observed, that by some the colour of the horse was thought to influence the amount of perspiration thrown off; and he was inclined to favour this view, for it was well known that the radiation of heat depends much upon the colour of the body, and there were some diseases dependent on it; he would name grease.

Mr. Croxford observed that, in the course of his practice, he had found white legs to be more susceptible of this disease than others.

Mr. Delany did not really think they were. They would, however, no doubt be found more difficult to cure. In answer to the question, he said one of the causes of a staring coat was a cessation of the natural secretions of the skin. He attributed the appearance of white hairs after the application of a blister to an alteration in the matter which gives colour to the hair. There had been instances where parts of a horse had become white, and, in the course of time, regaining their original colour. In skin diseases he would give the potas. tart. of antimony, because it had the effect of promoting the secretion of perspiration, thus bringing about a healthy action of the perspiratory glands. But when this course of treatment was adopted, he should recommend that the animal should be well clothed.

In cases of mange he would not hesitate to bleed; but there were cases in which he should abstain from it. He should take blood from the jugular vein. He had not seen many cases where it had been necessary to bleed at all; but where it had been done, it had led to no injurious effects on the vein. There were some instances where the disease was brought on by general poverty of blood, and in those cases, of course, bleeding would not be resorted to.

Mr. Wills did not agree with *Mr. Sayer* in opinion, that debility in the part was the cause of the colour of the hair becoming altered. He was more inclined to think that, instead of debility supervening from the application of a blister, there would be increased action. He did not consider that, under the application of a blister, they would of necessity have a change in the colour of the hair. It had been stated by *Mr. Delany*, that a white-legged horse was not more susceptible of grease than one having black legs. He, however, thought there was a greater degree of susceptibility in the one than in the other. It was also found that the disease was much more easily and much more quickly cured in the black than in the white-legged patient.

Mr. Delany said, that what had been observed by *Mr. Wills* was perhaps correct. He would, however, remark that he had carefully watched the progress of this disease, and he had been engaged where there had been a large stable of grey horses: it was a large posting establishment. The horses had had their legs well washed when they had come in from work, and yet he had never seen grease attack them. Of course, he stated this as the result of his own observation.

Mr. Sansom, in mange, would be inclined to abstract blood, with a view to improve the state of this fluid generally, which of course would be effected by getting rid of the unhealthy blood. He considered the formation of new blood a very likely means of getting rid of the disease. In such cases he had bled from the jugular vein.

Mr. Greaves would ask *Mr. Delany* whether he was of opinion that mange might be brought on by checking the perspiration?

Mr. Delany thought that in some cases it might, whilst in others it would not. Mange depended very much on the state of the blood; it was also often produced by contagion. In a great many instances it was desirable to obtain an increase of secretion from the skin, and then he would recommend sweating by galloping, with clothing.

Mr. Greaves had seen very many such cases. They had well sweated those patients, and, on their coming in, they had been washed with hot water and soft soap; and that treatment had generally proved beneficial. He considered that much depended on getting the system into a healthy state, and this would be effected by giving repeated small doses of aloes combined with diaphoretic medicines. He had witnessed some cases which alone yielded to frequent applications of cold water. He believed Professor Sewell had mentioned other cases where this remedy had been attended with similar benefit. The action of it was doubtlessly that of a sedative, and by evaporation the parts affected were kept cool, thus lessening the inflammation.

Mr. Delany, in reply to *Mr. Croxford*, said, he had seen many cases of surfeit—a disease which he conceived was more likely to occur in very warm weather than at any other period of the year. Visitations of surfeit were more frequent in high-conditioned than in lean horses, from their having a larger quantity of blood, and being more liable to checked perspiration.

In answer to the question from *Mr. Greaves*, he would state that, in his opinion, mange was the consequence of an unhealthy character of the secretions, by which animalculæ are generated. He was not prepared to say that animalculæ existed in every case of mange, although he was perfectly aware that such an assertion had been made.

The Secretary remarked, that he had frequently known a disease simulating itch produced by the dissection of animals affected with mange. There were also some present who had experienced this.

Mr. Cook believed that the itch could be communicated from a human being to a horse, just as well as the former would take it from the latter when labouring under an attack of mange.

The Chairman did not consider ring-worm to be a species of mange. Indeed, he was of opinion that but little was really known about most of the diseases of the skin. He did not think that they were yet acquainted with the true causes of mange, although there were those who had ascribed it to the presence of an insect. Surfeit was something like it; and *Mr. Greaves* had just named another disease which he had confounded with it, which was urticaria. He had seen ring-worm in the horse, but it soon yielded to the application of the sulphate of iron.

Mr. Wills had seen a case similar to the one mentioned by *Mr. Greaves*, about two years ago. The eruptions disappeared in twenty-four hours by bleeding and a dose of purgative medicine. In that case the spots were as large as half-a-crown. The animal had been ridden by the owner not more than half a mile when these swellings made their appearance.

Mr. White had seen many instances of inflamed veins which had arisen in consequence of bleeding from the jugular for mange. He thought it was a general opinion that bleeding from some other part than the jugular vein would be preferable, for the patient was apt to rub out the pin.

Mr. Delany, in answer to a question from *Mr. Sayer*, said that, in his opinion, it was necessary for the animal affected with mange to come in contact with another in order to communicate the disease. It was a contagious not an infectious disease.

Mr. Sayer had known several colts to be running about a yard in which there was one which was affected with mange, and yet none of the others had taken it.

Mr. Delany certainly did not mean to say that every horse would take it by contact; there were, of course, exceptions.

Mr. Wills was perfectly satisfied that, if more attention was paid by those having the care of horses to the use of the comb and brush, we should not have this disease so frequently transferred from one animal to the other as we now have.

MARCH 23, 1841.

Mr. FRYER, V.P., in the Chair.

Certificates of Membership were granted to Messrs. Croxford, Wardle, Morgan, and Heffer; and of Fellowship to Mr. Croxford.

There was laid on the table an improved Neurotomy Knife, by Mr. Woodger; also an instrument invented by Mr. Evans, student, that blended in one the hammer, pincers, and buffer, and which will be found extremely useful for taking off or putting on a shoe when the assistance of the farrier is not to be obtained.

The following letter from Mr. Birkitt, of Gainsborough, was then read:—

To Mr. W. J. T. Morton.

Sir,—I have been in the habit of using tin bottles, similar to the accompanying, for giving *drenches*, during the last four years, in a tolerably extensive practice, without experiencing the slightest inconvenience, although I frequently administer draughts without any assistance.

After a few trials any one may soon become expert in their use, and will, I am convinced, adopt them in preference to the horn; not only on account of their being safer, but, also, more convenient. I have, therefore, ventured on begging your acceptance of those herewith sent; and should you think them worthy of the inspection of the students now at College, it possibly may be the case that some of them will suggest an improvement, which I shall be glad to hear. The largest bottle I use for cattle; the next size for the horse; the next (*wrapped with wire*) for swine; and the smallest for sheep and dogs.

As an individual, I beg sincerely to thank you for the introduction of your medicated solution for setons, as also the diniodide of copper, both of which I use extensively: the latter in various cases with the most complete success; the particulars of which I should be glad to lay before you had I an opportunity.

In the hope that your zeal for the benefit of the profession may continue unabated, I remain, &c.

Mr. J. S. Mayer introduced the Gum-bandage as a substitute for splints in cases of fracture. He accompanied it by the following remarks:—

The treatment of fractures by the application of splints is one of the most important means of cure had recourse to by the veterinary surgeon. The splints he generally employs are made of wood lined with leather, and are commonly applied to the parts

by means of a charge; but this is found to produce considerable irritation and inflammation, as do, to a certain extent, all splints and bandages. The splint which I have the honour to bring under your notice this evening is one that I have seen extensively employed in St. Thomas' Hospital (called the Gum Splint), with the most beneficial effects; the patients in many instances having been enabled to walk about the wards the day after its application, without any assistance, and little or no pain to themselves. And from the effects I have witnessed, I am of opinion that it might be advantageously employed by the veterinary surgeon; at least it appears to me to be worth a trial.

I have here a fractured leg on which I have applied the splint in question, on the principle acted upon in the schools of human surgery, for the purpose of elucidation. Having first placed the fractured portions in juxta-position, and cut the hair neatly off, I rubbed a solution of one part gum arabic in two or three parts of water, while warm, on it, extending from the hock to the fetlock; after which I enveloped the leg with patent lint, previously fitted to the parts, on which I rubbed another layer of the gum, and, lastly, applied the bandage, beginning below the fetlock, and extending as high up as the hock, rubbing a layer of gum on it also.

When this is dry, it forms a remarkably strong bandage to the parts, thus retaining the bones in their proper places, while it allows the animal to use its limb.

I have tried it on dogs with great success. The first case I used it for was an oblique fracture of the radius, and on the following day the dog was enabled to set its foot to the ground with, apparently, little pain: and I am confident, from the effects I have seen produced, it is well worth the attention of the practitioner. Should any of you on the first opportunity that may present itself subject it to a trial, I shall feel it a kindness if you would communicate the results to me, as I hope at some future time to have the honour of introducing an Essay on Fractures to the Association.

The consideration of Mr. Delany's paper was then resumed.

Mr. Mayer thought the author of the Essay on Diseases of the Skin had taken too confined a view of the subject. Surfeit would arise in many instances from merely a change in diet. For that the author did not say whether venesection was or was not commendable. Neither had he attempted a definition of the two kinds of surfeit, one of which always occurred in the spring and autumn, and the other was occasionally to be found at all times of the year. He had also not made any distinction between that which arose from poverty of the blood, and that from plethora.

He had likewise recommended the use of tartar emetic. Now he (*Mr. M.*) could not see what benefit would follow the employment of this drug, for

in his opinion it would not have any effect upon the skin. He would suggest the adoption of purgative medicines in preference.

Surfeit is often caused by obstructed perspiration, and he had known instances where it had arisen from plethora, and others from poverty of the blood. Mange he considered to be caused by an insect, and many of the French authors confirmed that opinion, for they said that in some cases they had seen the insect moving about.

Cracked heels often arose from partial washing, and not wiping them dry afterwards.

With respect to grease, that was a disease which he thought was owing, in most instances, to bad fodder, and the peculiar constitution of the animal itself.

Mr. Delany said that the gentleman who had first spoken appeared to have taken a wrong view of his intention in introducing his Essay to the Association. In that paper it had not been his object to allude to every disease of the skin, but only to a few of them, and those that were most commonly met with. He conceived this must be apparent to all.

With respect to cracked heels, he concurred that, in some cases, a change of temperature was merely wanted in order to produce it. Leaving the heels wet was, of course, a means by which a change in the temperature of the skin would be caused. He was also inclined to think that mange might be attributable to an insect, and with *Mr. Mayer* he was bound to say that, although poverty and want of cleanliness might assist, still that they were not the sole cause of this disease.

Mr. Litt observed, that as *Mr. Mayer* appeared to be inclined to entertain an opinion that mange was a disease which was really produced by an insect, he would beg to ask that gentleman if he had ever seen the insect.

Mr. Mayer replied in the negative.

Mr. Litt said he was one of those who considered that the French authors were somewhat given to speculate a little too much. For his own part, he doubted the existence of the insect in mange.

Mr. Delany, in reply to questions from *Mr. Rolfe*, said, he considered the most common cause of grease to be the leaving of the animal's heels wet and dirty. Any sudden change of temperature was also likely to produce it, especially if the animal was of a delicate constitution. Leaving such an animal, as was frequently done, fastened near the stable door in a state of perspiration, and the heels wet and dirty, was bad, and oftentimes produced swollen legs. It brought on inflammation of the skin, which went on to grease.

When grapes, as they are designated, had formed, he used the hot iron, thus taking them off at once. He considered that to be the best plan of treatment. If, however, it chanced that there was much inflammation in the legs, he would not, of course, apply the iron. But generally they did not find much inflammation when these fungoid excrescences were thrown out, and it was in such cases that he would use the iron.

Mr. Wills was of opinion that a predisposing cause to grease was clipped heels. In some establishments it was a common custom to clip all the heels, and there grease was oftenest to be found. His preceptor had once told the owner of an establishment which they had under their charge, that if his horses were not so frequently clipped he would not so often have grease, for by clipping the heels so much they were exposed to the influence of the noxious vapours which arose from the dung and urine, which in a stable not kept clean he should say would be an exciting cause.

Mr. Delany coincided in the opinion that clipping the hair from the horse's heels would be likely to render the part more liable to the visitation

of grease; but he was inclined to think that it most frequently was attributable to dirt in the heels. If, then, the dirt were to be removed, that cause would no longer be in existence. Dirt was generally, if not invariably, found to be the cause of grease in the pure man's stable, and among cart horses. He did not think that noxious grass alone were sufficient to cause grease, but, of course, if there was a predisposing tendency in the parts, then the dirty state of the stable would necessarily be a cause.

He was inclined to think that in most cases the cause might be traced to neglect and bad management. There were some horses who were, no doubt, more disposed to grease than others, and there were those who were more exposed to what they termed external causes, and yet never had it.

Mr. Rolfe had applied blisters in cases of grease, with very great benefit, and he, for one, should not have recourse to any other remedy until he should meet with one which had been proved to be more effective; a discovery which he did not think was very likely to be made in his lifetime.

Mr. Delany had never seen blisters tried in such cases, and he was rather inclined to doubt their efficacy. As, however, *Mr. Rolfe* had adopted that course of treatment with benefit, it was not improbable but that he might be induced to try it. He could not but think that the blister would tend to excite inflammation, and thus increase the granulations. In what way did *Mr. Rolfe* conceive that the blister acted upon and removed grease?

Mr. Rolfe.—By promoting absorption.

Mr. Delany said that there were some stages,—for instance when they had existed for a considerable time,—when he did not think that any agent would sufficiently excite absorption to remove them.

Mr. Willis believed that a blister would often be a cause of cracked heels and grease. He had frequently seen such a result where the heels had been blistered.

Mr. Tinsdale.—It appeared to him, from what had fallen from the author of the Essay, that that gentleman entertained the idea that grease was a local complaint merely.

Mr. Delany did think so; but there were, of course, some instances where that was not the case.

Mr. Tinsdale thought that it was not only sometimes constitutional, but likewise hereditary. He had known an instance where a mare had been cured of it, and then put to the harness. She afterwards had had three or four colts, and all were the subjects of grease.

Mr. Willis would ask whether it was *Mr. Delany's* opinion that the hind legs were more frequently the subject of this disease than the fore legs, and for what reason?

Mr. Delany did not think that such was the fact, although he had heard it asserted. He had seen as much of this disease in the one as in the other.

Mr. Rolfe had seen many cases of grease in the cow—they were treated in the same manner as if they had occurred to the horse. He had also seen the disease in the bullcock. He had even seen it go on to grapes in the cow.

Mr. Green had seen rowels applied to the thighs, and in every instance with the best results. The application of the rowel in that part had good effect on grease in the heels. He considered the disease to be, in many cases, of a constitutional character, and therefore would at some time or other make its appearance, unless great care was taken. The condition of the hoof was the chief agent in most instances. A horse with long hairs to the hoof excessively irritated and retained a poisonous effluence, which would defend the skin, and prevent the action of the gravel upon it; but if that hair were taken away, the gravel, of course, would get into the skin, and excite inflammation. He was inclined to believe that, if a horse was clipped

when there was a disposition to grease, disease would the sooner make its appearance.

He had certainly seen grease more in the hind than in the fore legs, but he considered that the one was as liable to the disease as the other. There were, however, more exciting causes in the hind legs than in the fore ones. The circulation was more languid in the hind feet. They were farther distant from the heart, and the blood was consequently more impure. In the fore leg he would apply the rowel behind the brisket.

In reply to Mr. Whitwell, Mr. G. said, that greater care was bestowed on the thorough-bred horse than on any other. The legs of a race-horse were most scrupulously attended to, and kept perfectly clean, while those of the cart-horse were in most instances neglected. The stables, too, were differently constructed and arranged. In the race-horse stable there were no noxious vapours to be encountered,—no noxious gases rising to affect the legs; but it was not so in the cart-horse stable. Again; the thorough-bred horse had great power in his legs compared with those of the cart-horse, and he also had regular exercise, which was not the case with the other.

Mr. Twinberrow added, that the cart-horses were accustomed, in many instances, to unwholesome food. The hair also of the race-horse was sleek, whilst that of the cart-horse would often stand out an end.

Mr. Litt had long been of opinion that the veterinary surgeon was in the habit of taking too narrow a view of this subject, in so far as related to the causes of disease. He thought that they too much lost sight of individual causes, and of the particular occupation in which the animal might chance to be employed. His own experience would not allow him to say whether a horse whose heels had been clipped was or was not the more liable to grease. He was equally unable to say whether a white or any other coloured horse was the more or less liable or subject to this disease; but the experience he had had fully bore him out in the conviction, that the horse which was engaged in dirty work was the most liable. He had seen horses in good stables, of all colours, nourished upon the best food, and kept perfectly clean, yet sadly diseased. Those cases he had attributed to the particular employment in which the animals had been engaged.

Mr. Twinberrow said, that the horses belonging to farmers were more liable than any others; and that fact would go in confirmation of the opinion of Mr. Litt upon the subject.

Mr. Mayer said, it was a very remarkable thing that the horses which were at work in the coal pits were very seldom subject to grease.

Mr. Barth had had much to do with coal pits, and he had observed that grease had been very prevalent. Cracked heels were continually occurring. He accounted for this from the horses generally working up to their knees in water.

Mr. Godwin had seen many cases of this disease in the Staffordshire pits.

Mr. Sansom had also seen several cases of this disease in horses that worked in coal pits. In many instances the horses were never brought up to the surface of the earth until they were dead; whilst there were others where they were brought up every night. He was of opinion that the chief cause of the disease was long standing in the stable, and the want of exercise.

Mr. Twinberrow differed in that opinion, inasmuch as farmers' horses were very subject to it, and yet were accustomed to take a great deal of exercise every day. These horses were usually fed soon after they were brought in from work.

Mr. Delany believed that grease was in a great measure owing to a natural predisposition, because he had known cases where horses which were much exposed to every exciting cause had never had it; while there were

others, and where a similar exposure did not take place, who had become victims to it, and without there being the possibility of tracing the attack to any particular cause. He was of opinion that the disease was hereditary. Whether it arose from a peculiar weakness of these parts, or whether it was constitutional, he could not pretend to say; but he had no doubt that it was hereditary.

Mr. Williams believed that what had been said as to the disease being hereditary was perfectly correct. He had had a horse whose mother had been greasy, and he and his friends had expected that the horse would have had the disease, and, therefore, it had been suggested that the animal should be sold. That suggestion had not been acted upon; and, accordingly, they had kept him five years without his having it. In the sixth year, however, the disease made its appearance. During the whole of this period the animal had stood with other horses, none of which had had it.

Mr. Gooch said, that he had seen the chlorinated lime used in these cases with the most beneficial effect. He had had two cases wherein he had tried it, and with the best results. They were not, however, what he should denominate inveterate cases.

Mr. Shorten had also seen it applied with good results.

The meeting then adjourned.

MARCH 30, 1841.

The PRESIDENT in the Chair.

Mr. Mosley and Mr. Gording, Students, were elected Members.

The Secretary said he should have the pleasure of reading a singular and highly interesting account of what has been designated AN OSSIFIED COW'S BRAIN, forwarded to the Association by Mr. Gloag, of the 10th Hussars. Anticipating that such could not fail to awaken inquiry, he had been induced to have a drawing made from the slight sketch and able description given by Mr. Gloag of the same size as the original structure; and he had the authority of Mr. Barth for stating, that the artist had been very happy in his delineation of this abnormal growth. The peculiarities would be traced as he read the following statement:—

Coventry, Warwickshire,
March 2, 1841.

My dear Morton,—In the course of a conversation with Mr. Barth, I mentioned that I had seen an Ossified Brain of a Cow in the possession of the Rev. Mr. Simeon, the Rector of St. Michael's, Coventry. As Mr. Barth was desirous to see it, I called with him upon Mr. Simeon, and he was kind enough to shew it to us. Considering that the Members of the Veterinary Medical Association would wish to have some account of it, I had previously obtained Mr. Simeon's kind permission to make

the matter public, and I was very glad that Mr. Barth had the opportunity of examining it, that he might be able to give a description of it.

It appears that a cow was slaughtered at the village of Fettercairn, near to Montrose, co. Angus, Scotland, in the year 1744. She was killed because she did not acquire flesh; but she appeared healthy, and performed all the ordinary functions of an animal. Great difficulty was experienced in killing the animal by the usual mode; and it was only by repeated blows that she was knocked down. On examination after death, the brain was found to be completely ossified, and a piece was chopped out by the repeated blows. These facts were investigated a few days afterwards, but, unfortunately for the interests of science, not in a minute, anatomical manner.

Professor Simeon, grandfather of the Rev. Mr. Simeon, was at that time Professor of Anatomy and Medicine in the University of St. Andrew's, and an Honorary Member of the College of Surgeons, Edinburgh; and the brain was immediately forwarded to him, and he laid it before the Philosophical Society of Edinburgh, as well as before many eminent men of that day. Dr. Abernethy and the late Dr. Munro saw it, and the late John Hunter offered Professor Simeon, through the Rev. Wm. Simeon, 200 guineas for it, and, afterwards, 100 guineas for the half of it; both of which offers were refused.

At the death of Professor Simeon it passed into the hands of Dr. Simeon, the late eminent physician of this city; and on his death, fourteen years since, it came to the Rev. Mr. Simeon, its present owner, and, excepting to the medical men of this neighbourhood and Mr. Simeon's own friends, I suppose that its existence is unknown.

The Professor wrote a work entitled, *An Enquiry how far the Vital and Animal Functions of the more perfect Animals can be accounted for independent of the Brain*, in five essays, being the substance of the Chandos Lectures for the year 1739; and, after a very interesting and particular inquiry into the various vital functions, he gives the account of the ossified brain. Through the kindness of Mr. Simeon, I copied the narrative, which I append, first venturing on a short description of my own.

As far as I can judge, I believe that this substance occupied the place of a brain. The peculiar appearance and convolutions of the brain are preserved throughout; but it does not appear in all respects to preserve its perfect form, and it is, I consider, larger than a healthy brain. But it could not be expected that a diseased organ would retain its original shape exactly. In all

parts perceptible to the eye, it is completely ossified ; and where cut into, presents an appearance dense and solid, and more comparable to ivory, being quite different from the usual structure of laminated bones. The anterior surface presents the division between the cerebrum and cerebellum nearly perfect all round, admitting a shilling-piece edgewise. The division down the cerebrum is likewise evident by a well-marked seam or furrow. On the anterior surface of the cerebellum there is a considerable tuberosity, which we may imagine to be the original seat of the disease or ossification. A piece of the brain has been chipped out by the axe, partly off the cerebrum and cerebellum, on its anterior surface ; and on the superior surface of the cerebellum a portion has been chipped off, which was evidently done in extracting it from the skull. The posterior surface of the brain is imperfectly developed ; and it is very obvious that it has been with great difficulty extracted, and portions of the bones at the base of the skull are still adhering to it : this is very evident, from the well-marked difference of structure of the bones to the substance of the brain, these shewing the porous laminated structure and the petrous portions of the temporal bones, and which seem to me very plainly to be adhering at the present time. I judge that they are these bones, from the difference of texture to the other bones and to the brain ; also, by their shape, position, and the fact that they are not portions of the brain, *being loose*. The principal portions of the brain we should wish to examine, viz. the origin of the nerves, &c. are hid under these attached pieces of bone ; and, by tapping the bone, I think it is slightly hollow, although from the great weight of the mass there can be but a very small vacuum. Here and there the line of division between these portions of bone and the substance of the brain is clearly to be seen. These attached portions of bone appear to extend nearly to the situation of the optic nerves, which are plainly shewn, broken off short before they cross each other. The inferior portions of the cerebrum seem by the roughness to have been torn from the attachments.

Any comment of mine would be useless : it opens a large field for future investigation and research that may not be without its benefit ; and I feel happy to be the medium of presenting it to the notice of the Association.

Believe me, &c.,
M. GLOAG.

An Account of the Ossified Brain of a Cow, killed at Fettercairn, a Village near to Montrose, in the County of Angus, Scotland, by Professor SIMEON.

"IT being my good fortune to be some nights at a gentleman's house, in our neighbourhood, in August 1744, attending a patient, with a worthy old gentleman of our faculty, Dr. Wedderburn, in Dundee, among other subjects we had occasion to discourse of, we argued some time about the use of the nerves, and the diseases arising from their disorders, which our patient's case naturally led us to : and as it was a subject I have treated of at length in my lectures, I was prepared to lay before him my scheme, as I have explained it in the foregoing essay ; which, however new, seemed to be pretty well relished by my friend. To confirm it, he acquainted me, that the physicians and surgeons at Dundee, had in their collections of rarities an ossified cow's brain, which was killed at Fettercairn, when she had no seeming defect either in her senses or motion.

"I took the first opportunity to get a sight of it ; and found it one of the completest brains I had heard of, though thoroughly vitiated. I drew up the fullest account of it I could get ; and when it was my turn to bring in a paper before the Philosophical Society at Edinburgh, laid it, with the brain itself, before them, as I likewise did before several of my correspondents ; among whom there were some who would not at all allow it to be the brain, but rather some excrescence from the skull ; which certainly was a very forced supposition ; for, upon surveying it, it is found quite smooth all over its surface, except some seemingly carious spots at the place I consider the base ; and, among these, the small granulated pieces which shoot out, the most being quite smooth, and, as it were, glazed over, shew there was no cohesion there ; so that the only place to be suspected for being joined to the skull is the small end, which, indeed, is quite rough, and looks as if it had been broken off from the parts next to it, from mammillary processes, running upon the os cribriforme, which are very large in cows. Now, as this is the only part at which we can suspect a cohesion to the skull or the parts contiguous to it, what freedom in supposition is it, to reckon that such an exostosis had arisen from so small a root, and had spread to such an extent both in breadth and length ? Where was there ever found such a regular and smooth piece of bone not natural, except upon some regular part being ossified ? It was further argued, that upon comparing it with another brain of a cow, it was found much larger, and not at all of the shape. But who could

expect, in such a vitious disposition of a part, that either the bulk or shape could be preserved ! Is it not a sufficient testimony of the fact, that the butcher found it in the scull, and depended upon its being the brain : that Mr. Gentleman to whom the cow belonged, received it as such, and delivered it to his brother, an inhabitant in Dundee, to be delivered to our faculty there ; who always looked upon it as such, and, no doubt, would then be as particular in inquiring about its circumstances as possible ; as would that curious and learned gentleman, Duncan Forbes, Esq., late President of the Court of Session, who was at the place two days after the slaughter of the cow, and desired the brain to be delivered to the College of Physicians, at Edinburgh, but was refused, because of the prior engagement to deliver it to those at Dundee. I have compared it with two different brains of cows, where the upper and lateral parts of the scull were separated, and found a much greater resemblance between them than I could expect between a part in its most natural state, and when so strangely changed in its consistence ; which we cannot suppose should happen, without great disorder about the part so changed.

“What I take to be the cerebellum is, indeed, six times, at least, bigger than natural, and is bounded from the other by a chink, running across what I reckon its upper part, and pretty deep, inclining forward, and glazed on both sides, as far as we can see down, as is the upper surface and sides of the whole bone ; and the hinder part, which is tuberos, and the lateral parts of the base, more prominent than the middle, which is something hollow, and appears as it were carious ; but all the other parts, except those we reckon broken from the mammillary processes, are not only of a glazed smoothness, but in colour of a tarnished yellow, as if the pia mater was ossified with the brain.

“And, besides the bigness of that part, I reckon the cerebellum, it is raised much above its ordinary height, to a level with the other part ; and in its middle there is a particular protuberance, as big as a walnut, so that this part is out of all form, only its undermost posterior part consists of two gibbous portions, as we find the lobes of the cerebellum, though these are much less.

“But the bigness and figure of the cerebrum are preserved greatly in the ossification ; for I found the greatest resemblance in it to one of these with which I measured it, and other ways compared it : both of them bulged along the sides of the upper surface, so that the middle between the two was somewhat hollow, along which the falx runs ; and both of them from behind tapered forward, much in the form of a wedge, for two inches of the smaller extremity, where they were much of the same breadth. From the chink to this in the ossified brain the length was $4\frac{4}{10}$

inches, and in the fresh $4\frac{3}{10}$. At the chink, where the greatest breadth was in the ossified brain, the breadth was $3\frac{7}{10}$; in the other the posterior part was in breadth $3\frac{8}{10}$; in both the breadth continued much the same, except for two inches, where both turned so small; and the weight of the whole is one pound seven ounces and an half, merchant weight, of which I have caused an artist to draw two views; one of the upper part, with a portion of the side; and the other of the base, and marked what is most considerable in them. The piece wanting was struck off by the butcher, who, finding great resistance to several blows he had given with his axe to divide the head, at length, increasing the stroke, said, "*If the devil was in it he should be into it;*" and with that blow struck into the ossified part, which so far shews that all was solid; for if it had not been so, but supported with the soft brain, the scull would have yielded as easily as in ordinary cases. Considering, then, the resemblance it has to the brain, and its smoothness all over, except at some seemingly carious parts, and at the fore parts, where it seems to have been broken off, it appears a very ill-founded scepticism to call in question if it is the original brain ossified: and I should have expected worse symptoms from such a weight lying upon the brain than from its ossification, since the soft brain could not but have been bruised and torn, and its membranes greatly fretted by its neighbourhood.

"If some people, of whose judgment I have the greatest opinion, had not started the supposition, I could not have thought it worth while to have answered such objections; and as I look on it as a fact of the greatest importance in our medical inquiries, we cannot insist too long in clearing it up. For this purpose, after I had got the head in my possession, I immediately wrote to Dr. Haddow, who was then physician at Montrose, to make inquiry at the place where the cow was killed, about all its circumstances: and he, in company with Sir Alexander Ramsay, to whom the houses belonged possessed by Mr. Gentleman's widow, owner of the cow, called for her and her sister, and several of the neighbours who remembered the cow well, and got her history from them at length. That after she had been in their possession about a year and a half, she took a difficulty of breathing, which made her snort in her sleep, and sleep ill, and on this account, they reckoned, fall away in her flesh, and therefore they made one Silver, a butcher, now dead, kill her.

"They likewise observed that she fell down with the stroke, as other beasts do when killed with the axe; and that, when in life, she ate and drank, saw and heard, as well as any cow, and had a calf in the time she was in their possession.

"The Reverend Mr. Anthony Dow, minister of the place, of whom we likewise inquired concerning the cow, gave us much the same account; and says positively, from what he learnt, that there were no brains found in the skull, but this ossified lump only.

"But some time after I had sent the ossified brain to Edinburgh, understanding that it had given occasion to Duncan Forbes, Esq. President of the Court of Session, to acquaint Mr. Munro, Professor of Anatomy, with its history; as I expected something accurate from the President's observations, who was one of the most learned and curious gentlemen of the age, I immediately applied to my learned friend the Professor, to know what he had said concerning it, and had the following answer to my letter:—

"Dear Sir,—The President told me, that in travelling north, his landlord at Fettercairn (if I mistake not) told him, that he had then caused a cow of his to be killed, because she seemed dull, and was losing flesh; that the man who was endeavouring to cleave the head, finding a resistance he did not use to meet with, after cutting the bone through with an axe, examining what made the resistance, found the brain of a bony hardness; that the people brought the fresh head to him, who found it ossified as they had described it. I cannot tell whether the President saw the ossified brain when it was here; but it was on that occasion that I asked him to repeat the story, which I formerly heard him tell, and he promised to give it in writing to me, but was either too much hurried or too sick for doing it, when he was in the place afterwards." Thus far the Professor.

"I wrote to Dr. Wedderburn some years after our conversation on the subject, that I might be as distinct in it as possible, who returned me answer, That the cow being dull, and not healthful, was fed to be slaughtered, but did not get flesh; that the butcher in attempting to open the skull after the ordinary manner, found an uncommon resistance, which made him give repeated cross blows, saying, '*If the devil was there he would be in.*' Thus, the skull being very much broken, the ossified mass came out easily; and no body can view it but must be satisfied that it is the whole brain completely ossified. Thus, this cautious gentleman who was present at the delivery of it, and who acquaints me that Mr. Gentleman, from whom they had it, was a person of probity and sense.

"And this account agrees with what was got from the widow and others concerned in the cow, and that of the President, though none of them had opportunity to hear one another on the subject.

"There was never any suspicion of any thing of brain but what was ossified.

"The beast was falling away in its flesh, and was more dull than ordinary, though going about with all its senses; and the only visible disease else was a breathlessness, which disturbed her in her sleep, and was looked on as the cause of her losing her flesh.

"Whether or not might the ossification be continued down the nose, as the extremity of the brain next to it seems to have been broken off from the olfactory nerves?

"It was certainly a great misfortune that no anatomist was acquainted with it on the opening the skull, to consider the state of the membranes, the rise of the nerves, &c. But as it is, in my opinion we have a most certain example how far the muscles and senses can continue in office without the brain, though not without supplies; since where the brain was wanting the nerves have been found complete, which we find accompanied with the pia mater at their exit, and to have a like supply of bloodvessels in the whole of their progress; but though thus they are supplied with fluids, yet, from such histories, we must give up the correspondence of the mind with the different parts of the body, if we confine it to the brain; since, in such cases, their nerves have no communication with its seat, that is, with the cortical or medullary substance of the brain, to some distinguished part of which they supposed the mind confined."

••• The Editor regrets that circumstances which he could not foresee, and over which he had no control, have prevented the introduction of the Engraving of this Ossification of the Brain, and the discussion respecting it at the meeting of the Veterinary Medical Association. At some future and not distant time, he trusts that he shall be more fortunate.

APRIL 6, 1841.

The PRESIDENT in the chair.

Mr. Reynolds, Student, was elected a Member.

Mr. TOLL presented to the Association a set of splints that he had invented, and successfully employed in several cases of open knee joints. He described the many means usually advocated which he had had recourse to, and with variable success, but since he had used these splints his success had been uniform.

They consist of two pieces of light deal, hollowed out to the form of the back and front of the knee-joint, and confined above and below by means of leather straps. In front is an opening by which the dressings may be renewed without removing the splints. The topical agent he had usually employed was a weak solution of the bichloride of mercury, frequently applied by means of a sponge, leaving the wound open to the air.

The preventing of the flexion of the limb he considered highly important in bringing about a cure; and this apparatus effectually answered the intended purpose, while it caused no irritation by undue pressure on the surrounding parts; and even should the wound be inclined to one side, the necessary remedies might be as readily applied, since the splints do not meet each other when placed on the leg.

Mr. Daws considered the advantages to be indeed great that result from an open joint being placed in a state of rest, and he thought the present an excellent means to be resorted to for that purpose; yet he was not inclined to apprehend such serious consequences as many do from the animal's being allowed to bend her knee occasionally.

The President also considered these splints the best that he had seen for preventing the flexion of the limb.

The following Essay, by *Mr. W. P. TOLL*, was then read:—

ON PNEUMONIA IN CATTLE.

To the Members of the Veterinary Medical Association.

Gentlemen,—A desire to alleviate the sufferings of our domesticated animals has induced me to introduce the following Essay for your consideration. In the vast field of veterinary medicine there are numerous labourers who can cultivate it with much greater success than I can hope to do; but you will forgive me if I say, there is not one actuated by a greater love of his profession. Well knowing the little attention that hitherto has been paid to the study of the diseases of cattle, and the lower orders of animals generally, I have felt it my duty to do my utmost to direct the minds of my professional brethren to this neglected division of veterinary science.

I must, however, confess that, in selecting the present subject, I have some hope of being made instrumental in the accomplishment of good, let it be in ever so small a degree; and I have no doubt that, by those that sit around me, some addition to our stock of knowledge will be made; and thus we shall mutually assist each other in delivering our common science from that disgraceful abyss of ignorance in which it has been so long allowed to lie engulfed.

Happily it has made rapid advances during the last few years, and the studies of the pupil, at the present day, not only embrace an intimate acquaintance with the structure, functions, and economy of the horse, but of all domesticated animals; which additional

acquirements, I am firmly convinced, will be of incalculable benefit to all of us in our professional avocations.

Notwithstanding this consideration, it may be truly asserted, that the veterinary art, after all that can be said as to its recent advancement, is even now in a state of comparative infancy, not in point of duration, but in progress; this latter not having been equal to what might have been justly anticipated. Let us, however, hope that all will yet be well, and by co-operation endeavour to bring about the accomplishment of that which is devoutly wished by us.

As illustrative of the truth of my position, I may be allowed to state the startling fact, that cattle pathology, until of late years, has been regarded as beneath the dignity of the educated veterinarian, and the practice of it derogatory to his professional character. But now, it may be said, a new era has commenced, and the restorative treatment of all diseases in all quadrupeds is consigned to the qualified veterinarian, rather than to the cowleech and self-sufficient groom.

In conclusion, allow me to state, that I trust an emulative spirit will continue to predominate amongst us; and if it can be hereafter said, that I have contributed any thing to the general stock of veterinary knowledge, it will compensate me for the little trouble I may have taken in being personally present to defend this thesis.

I remain, Gentlemen,

Your very humble Servant,

WILLIAM P. TOLL.

The disease that I now venture to direct your attention to is Pneumonia, or Inflammation of the Lungs in Cattle; one well known by the profession to attack all animals, but more particularly the horse; cattle, however, are far from being exempt from its ravages, as will presently be clearly shewn. Bronchitis and pleurisy are affections more frequently met with than pure pneumonia. A distinction has been usually drawn between pleurisy and pneumonia; the former being an inflammation of the membrane that covers the lungs, as well as the internal surface of the ribs, diaphragm, &c.; the latter an inflammation of the substance of the lungs. There is also another disease of the lungs, which consists in an inflammation of the membrane that lines the wind-pipe and its innumerable branches. The name of this disease is catarrh or cold, and when existing in a higher degree, it has received the name of Bronchitis.

Until lately all chest affections were confounded under the one general term of Pneumonia, or Inflammation of the Lungs; and, perhaps, there is no reason for pushing our distinctions too far

here, except that it is satisfactory to know the precise nature of the disease that attacks our cattle, since that will probably lead us to the discovery of the best means of eradication and prevention. There are certainly some important variations in the symptoms of these chest affections; but in the treatment there is no very material difference. I shall, therefore, content myself by treating them all under the common head of pneumonia.

The substance of the lungs is made up of thousands of small cells, into which the air enters; and over the delicate membrane that constitutes the divisions of which, thousands of minute vessels are ramifying. Here it is the blood undergoes its important change from venous to arterial.

It is very easy to imagine that a membrane so delicate and so loaded with bloodvessels must be subject to inflammation, and that too of a dangerous character.

Causes.—Sudden changes from heat to cold, and *vice versa*. Occasionally it arises from drinking cold water after being heated, and sometimes it would seem to originate without any perceptible cause, being purely idiopathic. Those animals that are of a plethoric habit of body are oftener affected by this disease than others, and it usually appears at the distance of some hours, or even a day or two, after the exciting cause has been in operation. It has also been known to supervene on an attack of enteritis.

Symptoms.—The general symptoms are hurried respiration indicated by the quick motion of the flanks, dulness, and hanging of the head and ears—the horns are alternately hot and cold, particularly towards the roots—and the nose is hot and dry: there is also loss of appetite, and a quickened pulse, but not much altered in character. In the more advanced stages of the disease, the pulse becomes much accelerated and irregular—the head is extended—the eyes are bright, yet weeping—the animal grinds its teeth—the mouth and breath become hot, and sometimes there is a muco-purulent discharge from the nostrils—the flanks heave with greater violence, and the animal moans as if suffering pain; perspiration breaks out on different parts of the body, the temperature of which varies and singularly changes. A shivering fit often follows this.

In the latter stages of the disease there is great prostration of strength—the belly becomes tucked up—the animal is very languid—the flanks heave with greater violence—the pulse is weak, quick, and almost imperceptible—the breathing becomes more and more laborious, and is accompanied with a gurgling noise from the chest—the nostrils are dilated, and the mucus flowing from them varies in colour, and is very offensive—the mouth, horns, ears, and extremities become cold, the pupils are dilated, and the eyes are

not susceptible of the influence of light, the prostration increases, until at length death closes the scene.

Treatment.—This will depend in a great measure upon the cause of the disease, the strength and condition of the animal, &c. If it arises from plethora, bleeding will be our sheet anchor, which should be had recourse to as early as possible, and pushed to its fullest extent, adopting the old rule, viz. the blood should be allowed to flow until the pulse is affected. Should it arise from obstructed perspiration or the like causes, the animal will not bear the loss of much blood, and here particular caution is required. It is an important fact, that the pulse, properly observed, will prevent the possibility of any injurious consequences occurring from bleeding: in every case this cannot be too closely attended to. While the pulse keeps up, the power of the disease is undiminished; and the faltering of the pulse will give timely warning of the good that is being effected. The inflammation will often be so intense as not to yield to one bleeding, and then the progress of the disease must be carefully watched. If the pulse continue to rebound under the finger, a second or even a third bleeding must be resorted to; this, of course, being left to the judgment of the practitioner.

A seton inserted in the dewlap, and a blister applied to the brisket and sides, will sometimes prove serviceable, by diverting the inflammation from the old to the new tissue; thus causing a mitigation of the urgency of the symptoms by a species of metatarsis. Unfortunately, it is difficult to cause a blister to rise well on the thick skin of the ox; yet the common blistering ointment well rubbed in will occasionally prove beneficial. The terebinthinate solution of cantharides, repeatedly applied, will also cause considerable swelling. The patient should be placed in a cool loose shed, and the diet allowed may be bran mash, carrots, green food, or good hay, according to the season of the year.

The internal remedies should consist of carthartics which are mild yet speedy in their operation. There is a very proper fear of these agents being carried too far in the horse, on account of their producing a more untractable disease; but they may be given to cattle in pneumonia, generally with advantage, and always without apprehension of any ill consequences. My own experience leads me to advocate the use of the sulphate of magnesia, combining it with the nitrate of potassa and pulverized zingib. Should the bowels be constipated, from ℥viii ad ℥xij of the former may be given with from ℥ss to ℥j of the two latter, this being repeated twice or thrice in the course of twenty-four hours, if found requisite.

The constipated state of the bowels having been overcome, seda-

tives may now very properly be had recourse to. *Digitalis* here stands at the head of my medicaments; for it has a decided influence on the heart's action, diminishing both the number and strength of the pulsations, thus checking the excessive force of the circulation.

The potassio-tartrate of antimony and camphor will also be found very useful; the former being both a diaphoretic and sedative, the latter a narcotic.

In the practice of Mr. C. Parsons and myself, we have given the following compound with uniform success:—℞ *Mag. sulph.* ʒvi vel ʒviij, *pot. nit.* ʒss, *pulv. digitalis et camphoræ* āā ʒj, *ant. pot. tart.* ʒss, *M.* To be administered in gruel once or twice a-day, as the urgency of the case may require.

When the fever is in a great measure subdued, and the pulse sinks to nearly its natural standard, the *digitalis*, camphor, and *ant. pot. tart.* should be omitted, and the following given once a-day. ℞. *Mag. sulph.* ʒiv, vel ʒvi, *pot. nit.* ʒss, *pulv. cascarillæ cor.* ʒj, *pulv. zingib. rad.* ʒss, *M. ft. pulvis.*

It may not be unprofitable if I here relate a few cases that have come under my notice.

CASE I.—On the 28th of May 1840, I was called to see a heifer yearling, about eight months old. The owner told me she was unwell the day before, and but little or no notice was taken of her. This morning she was considerably worse. After a careful examination, I pronounced it to be a case of pneumonia.

Symptoms.—Pulse 100—breathing much accelerated—she moans frequently—the bowels constipated—the nose dry—the ears and horns are cold—and the eyes almost buried in their sockets. There was every appearance of its being an hopeless case; but being a particular fancy yearling, the owner was very anxious about her, and desired I would leave nothing undone. I ordered the following to be given in gruel. ℞. *Mag. sulph.* ʒv, *pot. nit.* ʒij, *pulv. digitalis et ant. pot. tart.* āā ʒss. *M.*

6 P.M.—She is looking quite dejected, and has eaten nothing during the day. Pulse 120, and weak; lies down a great deal, and will not rise without being lifted. Repeat the medicine before ordered.

29th, 7 A.M.—She looks a little more lively, and has stood up once or twice during the night, and drank a little water, but would not eat. The bowels have not responded to the medicine. Pulse 95. ℞ *Mag. sulph.* ʒiv, *pot. nit.* ʒij, *pulv. digitalis* ʒij, *ant. pot. tart. et camphor.* āā ʒss, *M.*, to be given in gruel. Small quantities of gruel were offered several times in the course of the day.

8 P.M.—A favourable change has taken place; the pulse is 90,

and the medicine has operated a little on the bowels, and she has eaten a little hay. The medicine ordered in the morning to be repeated.

30th, 10 A.M.—The bowels are open, the pulse is 85; the nose dewy; the extremities warm, and the appetite improving. R Mag. sulph. $\mathfrak{z}$ vj, pot. nit. $\mathfrak{z}$ j, pulv. cascarillæ $\mathfrak{z}$ i, pulv. gentianæ $\mathfrak{z}$ ss, M. Divide into two powders, one to be given immediately and the other in the evening.

31st.—Animal very much improved. Pulse 60, bowels freely responding, appetite good. R Mag. sulph. $\mathfrak{z}$ ij, pulv. cascarillæ et pulv. gentianæ $\mathfrak{a}\mathfrak{a}$ $\mathfrak{z}$ ss, pulv. zingib. $\mathfrak{z}$ ij, pot. nit. $\mathfrak{z}$ ij, M. On the 2d of June she was turned into a field with others, in a state of convalescence.

CASE II.—The subject of the following case was a half Guernsey cow. On July 17, the owner was informed that his cow did not appear so full and lively as she used to be, and was rather stiff in moving.

At 9 P.M. I was requested to see her, when I found her labouring under the following symptoms:—Pulse 75, respiration a little accelerated; ears and horns cold; coat staring, and the animal was very unwilling to move. She was removed to a house for the night, and the following draught given in warm water. R Mag. sulph. $\mathfrak{h}$ ss, pot. nit. et pulv. cascarillæ $\mathfrak{a}\mathfrak{a}$ $\mathfrak{z}$ ss, pulv. zingib. $\mathfrak{z}$ ij, M.

18th, 8 A.M.—The patient is considerably better; she moves more lively, and has eaten a little hay: about the middle of the day she was turned into the field again.

19th.—Much the same as yesterday.

20th, P.M.—Decidedly worse. The pulse is 98; the respiration is quick and laborious; the ears, horns, and extremities are cold; she is very unwilling to move, and moans every two or three steps she takes. I immediately bled her, when about 8 $\mathfrak{h}$ flowed away freely, and the following draught was exhibited. R Mag. sulph. $\mathfrak{z}$ vij, pot. nit. $\mathfrak{z}$ j, ant. pot. tart. et camphoræ $\mathfrak{a}\mathfrak{a}$ $\mathfrak{z}$ j, pulv. digitalis $\mathfrak{z}$ iss, pulv. zingib. $\mathfrak{z}$ ij, M. Infus. lini. Oij, M. She was allowed tepid water and bran mashes.

21st, 8 A.M.—A little better. Pulse 75, respiration more tranquil: she has eaten a little hay, and drank some water. Repeat the medicine ordered yesterday.

7 P.M.—The bowels have responded, but the breathing remains the same as this morning. Pulse 80. R Mag. sulph. $\mathfrak{z}$ vj, pot. nit. $\mathfrak{z}$ j, ant. pot. tart. $\mathfrak{z}$ j, pulv. digitalis $\mathfrak{z}$ ij, M.

22d.—Animal much better; the appetite is improved. Pulse 60, breathing tranquil; bowels open; ears, horns, and extremities comfortably warm. The following drench was given in the even-

ing. R Mag. sulph. ℥iv, pot. nit. et pulv. cascarillæ āā ℥j, pulv. zingib. ℥ss. M.

On the 24th she was quite recovered.

CASE III.—On the 25th of September last, I was requested to attend a young bull, the property of a farmer in this neighbourhood. I was informed, that on the 24th he was brought into the yard to serve a cow, and after serving her twice, he got out and ran the distance of four or five hundred yards, and then went through a river that was seven or eight feet deep. After an examination, I found he was labouring under pneumonia. Pulse 80, breathing a little accelerated; nose dry; bowels constipated, and no appetite. The following drench was given. R Mag. sulph. ℥x, pot. nit. ℥j, pulv. zingib. ℥iij, M.

8 P.M.—Pulse 90. Moans considerably. 10lbs of blood were abstracted, and the above draught repeated, adding pulv. digitalis ℥iss.

26th, 9 A.M.—Pulse 80; the breathing is more tranquil; nose dry; he urinates freely, but there is no action of the bowels. R Mag. sulph. ℥ss, pot. nit. ℥j, pulv. digitalis et ant. pot. tart. āā ℥ij. Aqua bull. Oj, dissolve and add ol. lini Oij, one half to be given immediately, and the other four hours after, if found necessary.

7 P.M.—The animal lies down a great deal, and moans with almost every breath taken; the nose is dry, and even yet there is no action of the bowels. Clysters were frequently thrown up, and the following given in the form of draught. R Mag. sulph. ℥viij, aloes barb., ant. pot. tart. et pulv. digitalis āā ℥i, pot. nit. ℥ss, pulv. zingib. ℥ij, M. Small quantities of gruel were horned down every two or three hours.

27th, 9 A.M.—A little improved. Pulse 62; and a few hard faeces have been voided during the night. R Mag. sulph. ℥ss, pot. nit. ℥j, pulv. zingib. et pulv. camphoræ āā ℥ij, pulv. digitalis ℥iss, M. To be divided into two parts, one to be given immediately, and the other in the evening.

28th, 9 A.M.—Patient is evidently worse; the pulse is 90, and much pain is evinced; the eyes are almost buried in their sockets. He has voided some softened faeces during the night. Eight pounds of blood were abstracted, and the following given. R Mag. sulph. ℥iv, pot. nit. ℥ss, pulv. zingib. et pulv. digitalis āā ℥ij, M.

6 P.M.—The symptoms remain as reported this morning. Six pounds more of blood were abstracted, and the medicine before ordered to be repeated.

29th, 8 A.M.—The animal is much better, and looks more lively; the breathing is more tranquil, and there is dewyness about the nose. Pulse 80; the horns, ears, and extremities are warm, and

the bowels open. R Mag. sulph. $\mathfrak{z}$ vj, pulv. cascarillæ $\mathfrak{z}$ j, pulv. opii, pulv. digitalis $\mathfrak{a}\mathfrak{a}$ $\mathfrak{z}$ iss, camphoræ $\mathfrak{z}$ ij, M.: divide into two powders, one to be given immediately, and the other in the evening.

30th, 10 A.M.—Animal still improving; the pulse is 76; the appetite returning, and the bowels are relaxed. R Pulv. cascarillæ $\mathfrak{z}$ j, pulv. opii $\mathfrak{z}$ j, M., to be given twice in the day.

October 1st, 9 A.M.—Pulse 66; respiration tranquil, but the bowels are acting more freely than is desirable. R Calcis carb. $\mathfrak{z}$ vj, pulv. opii $\mathfrak{z}$ j, pulv. cascarillæ $\mathfrak{z}$ j, M. To be given in two quarts of thin starch, and, if necessary, repeat it in the evening.

2d, 7 A.M.—A little improved; he looks more cheerful, and has eaten a little hay and turnips: the alvine evacuations are more natural. Repeat the medicine ordered yesterday.

3d, 11 A.M.—Going on favourably: the medicine to be again given.

4th.—Animal improving very fast. Omit the medicine.

I saw the owner a few days after, when he told me the bull was doing exceedingly well.

I could adduce several other similar cases, but I fear I have already encroached on your valuable time, and there is such a sameness in them, that their description becomes tedious. I shall now proceed to the

Terminations.—These are the same in nature and character as those of external inflammation, the most desirable being resolution, or the reinstatement of the lungs to their healthy condition. This may be known to have taken place by the return of warmth to the extremities, a tranquil state of the breathing, the full and usual beat of the pulse, the appearance of cheerfulness in the animal's countenance, the return of the appetite, and an ability to lie down with ease; these are the general indications of resolution after an attack of pneumonia.

Suppuration is also a termination of pneumonia, and one not always to be ascertained during life: there is usually present a difficulty in breathing, and the breath is sometimes very fœtid.

Hydrothorax, or serous effusion in the chest, is another very annoying termination to the practitioner, and this may be either acute and rapid, or more protracted. In the former it occurs from the third to the tenth or twelfth day. In the latter, or less acute, frequently not until the third or fourth week do the exhalent vessels of the pleura begin their serous secretions, which they continue to pour out until one or both divisions of the thoracic cavities are completely filled, when the animal dies from suffocation. This termination may be known to have taken place by a yellow serous discharge from the nostrils, and it may always be detected by the stethoscope, or the application of the ear to the side of the chest. A smart rap being given by an assistant on one side of the chest,

will produce to the hand of the observer, held on the other, an undulation similar to that received from a tap given to a bladder filled with water.

The pulse in these cases is likewise irregular, and gives a peculiar vibratory stroke; but the general indications are sometimes so little marked as to deceive the practitioner. It may also be suspected from the staring look and harsh feel of the hair.

Another termination is gangrene or mortification. Some cases have afforded me an opportunity for post-mortem examination, when I have found the lungs engorged with black blood, their texture soft and easily torn; often they contain spots of hepatisation or condensed substance, and sometimes abscesses. The pleura and pericardium are dark coloured, thickened, and approaching to a state of gangrene, and frequently there is an effusion of serum into the chest. The rumen contains some improperly masticated food, mixed with the fluids that may have been horned down; the contents of the manyplus are sometimes very hard; and the fourth or true stomach is more or less inflamed, the liver enlarged and of a light colour, and the bile of the colour and consistence of thick treacle.

I have now brought my paper to a close, and I am sorry this important subject has not fallen into abler hands to defend it in all its bearings; still I was desirous of contributing my confessedly small amount of knowledge and experience to the general fund of veterinary science; and I again repeat, that should I have been the means of eliciting but a little information from the members present, my object will have been gained.

The President observed, that Mr. Toll had given an interesting account of the pulse of his patients, which, he said, frequently ranged between 80 and 90, and in some cases had gone on to 100 or 120; while, at the termination of the attack, it had fallen to 60. Although Mr. Toll had stated these facts as to the number of the pulse at the different periods under this disease, he had not informed them what his experience had led him to conclude was the average range of the healthy pulse.

Mr. Toll considered 60 to be an average in these cases. He should say from 55 to 65, taking 60 as the average.

Mr. Fryer said that 55 to 60 was the average range.

Mr Swinnerton begged to ask, whether, after the administration of tartrate of antimony in these cases, the author of the Essay had observed an intermittent state of the pulse?

Mr. Toll had never treated the disease with tartrate of antimony. He had used digitalis, and he had found the intermittent pulse afterwards; an effect which he had attributed to the operation of the digitalis.

The President observed that the opinion of the Association was in favour of the existence of an intermittent state of pulse. It was a point which had undergone very considerable argument amongst the members. He should, however, like to hear *Mr. Toll's* opinion in reference to the question.

Mr. Toll was quite certain that such a state of pulse had been produced. He had invariably met with it after the digitalis had been given.

Mr. Simonds wished to confirm the opinion which had just been offered by *Mr. Toll*. That digitalis, when given by itself, even without the tartrate of antimony, would produce such a pulse admitted of no doubt. He had again and again tried it. He should say, that from 55 to 65, or from 58 to 60, would be the general range of the pulse. If he had a pulse at 60, he should not think that there was any thing very dangerous about the animal. There was, however, a far greater variation in the pulse of the cow than the horse, and yet they often met with much variation in the horse. He had known the pulse of a healthy horse to be at 28 only; and indeed it was not many days ago that he had seen a case in which the animal had been in good health with a pulse of not more than 24. On the other hand, and with the same apparent degree of health, they would meet with a horse having a pulse ranging between 40 and 45. However, notwithstanding these anomalies, he did not think there was that diversity of pulse in the horse which was met with in some other animals. In all young cattle there was a quicker pulse than in the adults.

Mr. White had usually found that in this disease the pulse had ranged from 80 to 90; but a great deal depended upon the state in which the animal had been at the time of his visits. He had

tried digitalis, and had frequently found it to produce an intermittent pulse.

The Secretary remarked, that in the recent discussions on this disease, another question had been mooted on which there was considerable doubt, What length of time was required to excite the suppurative inflammation in cattle, by means of a rowel of any description. He would, therefore, ask Mr. Toll, whether his experience had been such as to enable him to give a decided opinion on the point?

Mr. Toll had used the seton, but not the rowel, and he had produced some discharge, but not to the same extent as would have been produced in the horse. The action had manifested itself in about 40 or 48 hours after the application of the seton. The seton was dressed with the usual blistering ointment.

Mr. Simonds could very much wish that his practice would enable him to say the same. He perfectly agreed with Mr. Toll, that a suppurative action could be produced in the cow by the application of a seton; but he differed with him as to the time in which that action was usually obtained. Serum, no doubt, would be thrown out in a shorter time; but it had seldom taken less than two, three, or even four days to produce pus. He thought that a blister which was composed of one part of pulv. veratri and eight parts of lard would produce suppuration more quickly than any other irritating agent they could use. There were many practitioners in the habit of inserting the root of the black hellebore in the dewlap in the form of a plug. A certain degree of counter-irritation was thus produced, and suppuration ensued; but he had never seen *pus* in less than three or four days.

Mr. Twinberrow said, that in his practice it had usually taken from three to four days to produce the discharge.

Mr. Toll observed, that in his practice he had generally obtained the discharge in about 48 hours; but he had never got it so freely in the cow as in the horse.

Mr. Pratt had seen a great many cases of inflamed lungs in cattle, and as soon as the bowels were acted upon the patients became better. In most instances, he had given as much as a pound of mag. sulph., and had never seen any bad consequences resulting from it.

The President would ask *Mr. Pratt*, supposing he gave a pound of mag. sulph. at a dose, at what period would he administer another dose?

Mr. Pratt replied, that that would depend upon the state of the fæces at the expiration of forty-eight hours.

Mr. Toll would rather give smaller doses, and repeat them frequently, than large doses at such lengthened intervals. In answer to questions from *Mr. Twinberrow*, he said, that he had most frequently found animals affected with this disease in the spring months, the younger cattle particularly; and he considered it more under the controul of the practitioner when it shewed itself in cattle than when it attacked the horse. He had known cases where it had been allowed to run on for many days; but, generally, he should say it lasted about the same period in one animal as the other; but there had been considerable irregularity in this. Cattle lay down much more than the horse when labouring under this disease; indeed, it might be said, that they lay down a great deal. If the extremities were cold he never applied any stimulants to them. He always administered cathartic medicine in the first instance, especially where there had been any constipation of the bowels. He also preferred cathartic agents to any others in the latter stages of this disease. In all cases where there was a constipated state of the bowels, he had invariably given cathartics at the onset. In sixteen or eighteen hours afterwards, he had usually seen the desired effect produced. He had also employed blisters, but it was oftentimes very difficult to get them to act. There might be much tumefaction produced, and sometimes he had observed vesication, but not to an equal extent as in the horse.

Of course, a great deal would depend on the strength of the patient in reference to the quantity of blood which ought to be abstracted. He did not think the animal would be likely to sink from being bled judiciously. They might take a much larger quantity of blood from a cow than from a horse in this disease.

Mr. Simonds would ask *Mr. Toll* if he had ever observed any buffy coat on the blood taken from the cow?

Mr. Toll had found a buffy coat in many instances—that was to say, a very small portion; but there also had been many others in which he had not met with it. His attention had been particularly directed to that point, and he had detected the buffy coat

in many cases. He must, however, confess that he had not seen that appearance develop itself so much in the blood taken from the cow as that taken from the horse. It had, probably, been about a quarter of an inch thick.

Mr. Simonds had put the question, because it was one upon which there had been much diversity of opinion. The appearance which *Mr. Toll* had remarked, probably originated in the action of the air upon the surface of the blood. He had given some attention to this subject, and he had often taken blood from the cow for the express purpose of seeing whether a buffy coat would present itself, but he had never found it do so.

Mr. Toll had seen the upper part of blood taken from the cow present an arterial appearance from the action of oxygen upon it, but underneath this he had found the buffy coat.

Mr. Fryer said, that he had allowed the blood from a cow to stand for hours, but had never seen any approach to the formation of a buffy coat. In reply to questions from the President, he was compelled to say, that he did not think the cow's blood ever did present a buffy appearance. He had likewise frequently applied cantharides to the skin, but had never produced true vesication. He had excited much inflammation, and an effusion into the subcutaneous cellular tissue, but there had not been any thing like the separation of the cuticle from the cutis.

Mr. Simonds believed that *Mr. Youatt* was of opinion that the common blister might be employed with good effect. There was an irritant that he had been accustomed apply and which produced the most decided beneficial action; far more so than the ordinary blister. It was composed of

Lin. Sapon. 2 parts

Ol. tereb. et liq. ammon. aa 1 part.—M.

So active was this composition, that in ten minutes from the time of its application, the skin would become bedewed with moisture from transudation. After four or five hours, its application might be repeated, when it would again produce the same effect. By this compound they might thus keep up constant irritation.

Mr. Carter said, that in his practice they had always been in the habit of using two kinds of blister; one for cattle, and one for the horse. For the former it was composed as follows:—

Ung. canthar..... $\overline{3}$ iv

Pulv. euphorbii..... $\overline{3}$ j

Hyd. bichlor..... $\overline{3}$ j

Ol. tereb. q. s. ut fiat ung.

Mr. Pratt had seen a case of inflamed lungs in a young bull, for which a blister had been applied to the chest—the common

blister and vesication had been produced by it; but, certainly, not to such an extent as would have been in the horse.

Mr. Simonds was quite sure that every member of the Association must feel exceedingly obliged to *Mr. Toll*; not only for his valuable Essay, but more especially for his kindness in having come up from Cornwall for the express purpose of defending it.

The subject was, unquestionably, of considerable importance to the profession, and great care should be taken that correct views of its nature and treatment were promulgated. He might, perhaps, differ with the author of the Essay on many points which he had advanced. The causes of pneumonia in cattle, he was inclined to think, must be sought for more particularly in the state of the atmosphere than in those which give rise to this disease in another class of our patients, namely, the horse.

The symptoms in such cases had not much differed from those given by *Mr. Toll*. There had, however, been one symptom which did not appear to be exactly a characteristic. He referred more particularly to the act of lying down. Now, in all the cases that had come under his notice, he had observed, during the active stage of the disease, that this symptom was not present, and it was only when the patient was convalescent that she would occasionally be found in a recumbent position. "Let me not be misunderstood here," said he: "remember, I am not classing, as the Author of the Essay has done, all affections of an inflammatory character attacking the lungs under the general term of Pneumonia; but I am speaking of that disease in its true state, namely, inflammation of the parenchymatous structure of the lungs: and I will here express my regret that *Mr. Toll* should have considered that occasion did not exist for the separation of pleuritis and bronchitis from pneumonia. The symptoms of this disease had generally yielded in his practice to the abstraction of as large a quantity of blood as the state of the circulation would admit; this was followed up by a full dose of aperient medicine—viz. from a pound to a pound and half of the sulphate of magnesia; and as soon as the desired action was produced from this medicament, then, and not till then, did he administer sedatives. The counter-irritants upon which he most depended were not those recommended by *Mr. Toll*, for he believed that he had often rubbed in the ung. cantharidis just as honestly and as long as that gentleman, but he had failed to produce vesication by it: indeed, this was seldom to be obtained in the cow. The counter-irritants he employed were setons in the sides and dewlap, smeared with an ointment composed of axungia et terebinthin. āā part. iv, et pulv. veratri part. j. This compound was likewise well rubbed in upon the sides, being repeated when it appeared to be necessary.

He had usually found this course of treatment to be productive of benefit. The sedative agent he had employed was digitalis, in combination with the nitrate of potash and tartarized antimony. One case in particular he would refer to. It was that of a cow which he had been requested to attend, labouring under inflammation of the parenchyma of the lungs, and it was not until that animal had been bled thrice, as much each time as she could possibly bear, followed by the administration of drachm doses of digitalis three times a-day, that he had produced a sedative action on the circulation. He believed that every practitioner present was ready to admit that digitalis was a most valuable medicine.

In some of the cases Mr. Toll had mentioned he was inclined to think that the symptoms of which that gentleman had spoken were more referrible to indigestion than to any other cause. In one of them he stated that he was unable to discover any of the symptoms of pneumonia. On the contrary, he apprehended that that case had been one where a febrile action had been produced as a consequence of indigestion, and, therefore, as soon as the stomach had been restored to a healthy state, the patient had recovered. There had, according to the statement of the case, been no relief gained until the bowels of the patient had been acted upon, and then an improvement was set up. They all were aware how important it was that a proper action of the bowels should be obtained in all diseases. There were occasionally symptoms which indicated the lungs to be slightly affected; but those were often easily got rid of, simply by the administration of a bold dose of aperient medicine; and, indeed, cases of true inflammation of the lungs in cattle might be considered to be rare.

The views which he entertained upon the subject of this disease were thus seen to be somewhat different from those advanced by the author of the Thesis; but he was certain that that gentleman would see how desirable it was that the opinions and experience of all, let them differ however much they might, should be promulgated to the profession at large. In this particular disease it was true that much might depend upon locality; but, at the same time, he did not think that there could be so great a diversity in the symptoms of this disease in the cow in the county of Middlesex and those which had been described as presenting themselves in the country from whence Mr. Toll came.

Mr. Toll thought he had stated in his paper, that the disease pneumonia was not so common with them as bronchitis; and that he had invariably found the treatment for the one differed very much from that for the other.

Mr. White said that in the part of the country from which he came he had frequently seen animals labouring under this disease

lie down. It appeared to him that the cow was not so capable of bearing pain as the horse; and he considered that when she was lying down she could more easily dilate her chest than when standing.

Mr. Litt observed, that cases of pure pneumonia were rarely met with, this affection being usually associated with bronchitis and pleurisy. Such was the statement which had been made by others to him, and he was bound to say that his practice had led him to entertain the same belief.

Whatever might be the causes which occasioned such a result, whether it was to obtain relief in the act of respiration, or to gain any other benefit, he was satisfied that the cow was in the habit of assuming a recumbent position in pneumonia. In all incipient states of the disease he had found the evidently oppressed pulse which had been mentioned; but he had seldom met with it higher than 50, and always of that peculiar character which distinguished this disease in other animals. He would ask *Mr. Simonds* if in bronchitis and pleurisy, distinct from pneumonia, he had ever noticed a quick pulse of a throbbing character?

Mr. Simonds said, if he rightly understood the question which had just been put to him by *Mr. Litt*, it had reference to the peculiarity of the pulse in cases of bronchitis. In that disease he begged to say he had very seldom met with the oppressed pulse; but it was of the character described by *Mr. Litt*, quick and vibratory.

The President said, that with regard to the symptoms which were usually attendant upon diseases of the lungs, there were those which marked the presence of inflammation of the pleural covering, and of the mucous lining membrane, with the parenchymatous tissue. Now, he would ask *Mr. Simonds*, how his modes of treatment would differ. Would he pursue the same course in the one as the other disease?

Mr. Simonds.—No: in cases of pleurisy he should make free use of the lancet, apply counter-irritants, give aperient medicines, and adopt the use of sedatives if he found that the pulse from its state pointed out the necessity of such treatment. In cases of inflammation of the bronchi, he should not be so free in the use of the lancet nor of sedatives, but would prefer having recourse to the nitrate of potash and the nitric spirit of ether, with a view to excite a powerful action of the kidneys.

Mr. Toll, in answer to questions from *Mr. Delany* and others, said that he had never given belladonna in these cases. He had obtained from digitalis the sedative influence he had sought, and therefore had never had recourse to any other agent.

The President, in summing up the argument, the usual hour of

adjournment having nearly arrived, said that, prior to their separating, he felt it to be his duty to offer a few observations upon the subject so ably introduced to their notice by Mr. Toll. In the first place, he would beg leave to second the remarks made by Mr. Simonds, that every member of the Association must feel greatly indebted to Mr. Toll for having travelled so far, not merely to present that Essay to them, but to be present at its consideration. Common honesty compelled him to acknowledge, that he did not profess to be able to advance any extensive practical remarks upon this question, because his experience, in reference to this disease in cattle, had been but limited. Therefore that which he should adduce on this occasion would rather be founded on the opinions which had been expressed by others on the Thesis than as the result of his own individual experience.

With regard, then, to the symptoms. Now, it appeared that there was a difference of opinion in respect to the symptoms in pneumonia, and a doubt as to whether certain of them indicated that the cow was attacked by this or that form of disease. The author of the paper had not stated that the inflammation in cases of pure pneumonia in his practice had been equal to or of the same character as that which had been spoken of by Messrs. Simonds, Fryer, Litt, and other gentlemen. He was inclined to think, from what he had seen and heard, that the parenchymatous tissue in the cow was not so liable to become inflamed independent of the other tissues, as in the horse. They were all aware that the cow was more liable to diseases arising from particular atmospheric changes. He, therefore, agreed in opinion on that point with Mr. Simonds.

Next, with regard to the fact of the cow lying down, deemed by some as one of the symptoms, and by others as not being a characteristic symptom of pneumonia. Upon that point, they found that the author in his Essay had related several cases which had come under his care, and in all of them the patients had lain down. But Mr. Simonds had said that he had met with cases of pure pneumonia where the patients had manifested the same obstinacy of standing as was known to be the case with the horse. Another gentleman said, that he had found the cow to lie down in this disease, although the animal was labouring under much difficulty of breathing. Now, the question naturally arose, whether that position might not have been of service, by relieving the respiratory organs in this case. But after all, this did not seem to him materially to affect the general question, because they knew that the reason why the horse did not lie down was, because in that position he could not perform the act of respiration with the same facility as when standing. It

appeared, therefore, that the one animal would lie down in this disease, and the other would not; and he thought this peculiarity was referrible to these causes:—first, to the fact of the one animal not being able to suffer pain with equal fortitude—if he might be allowed so to express himself—as the other: secondly, the cow being the less active animal, was more liable to become diseased if unduly excited. And, thirdly, the position of the cow when lying down was very different to that of the horse. When he looked to the sternum and ribs of the cow, he could not but be struck with the relief that such a position as the recumbent one was calculated to afford the patient when the act of breathing was oppressed. He was, therefore, inclined to entertain the opinion, that this was an affection of the chest where, in some cases, relief was obtained by the patient lying down.

With respect to the treatment of this disease, the discussion had been highly interesting, inasmuch as there had been much difference of opinion elicited. There appeared to be considerable doubt in the minds of some relative to the best mode of exciting the suppurative action, and there seemed to be much difference in the production of it in the cow and in the horse. They had been told by Mr. Toll, that suppuration could be obtained in the short space of forty-eight hours; whilst Messrs. Simonds, Fryer, and Litt had said that it would require three or four days. Now, he was free to state, that he fell in with the opinions of the three last-named gentlemen; for he had never seen the suppurative action induced in the cow in less than three or four days, and even then it had not been to any extent, not such, certainly, as he should have expected in the horse in the same time. It was manifest, therefore, that there must be some cause for the same result being obtained by the same agent in the one animal in the short space of forty-eight hours, while in the other three or four days were required. It was not a very unnatural supposition, that it depended greatly on the degree of susceptibility of the skin of the two animals.

Then, with regard to vesication. It seemed that they were not able to produce it in the cow equally to what they could in the horse; and, if they were to enter further into the consideration of the matter, it would be found that they could not produce vesication in the horse equal to that which they could in the human subject. What, let him ask, was vesication? They applied the ointment to the cuticle, and thus the vessels of the cutis were excited to an increased action. Now, the cuticle of the cow was much thicker than that of the horse; hence it was natural to conceive that the skin was more difficult to act upon; while the subcutaneous cellular tissue of the horse, also, seemed to be more disposed to pour out serum than that of the cow.

In reference to the pulse. If they had a pulse of 50, 55, or 60, and some had spoken of 70, presuming that they had the other abnormal symptoms accompanying it, they would, of course, abstract blood. The character of this fluid merited their notice. His friend, Mr. Simonds, was the first person who had asserted, in his hearing, that the blood of the cow labouring under inflammation had no buff upon it. Since that declaration he had been particular in his observations, and, certainly, he had found it to be the case. It was true that he had met with an alteration in its appearance after it had been standing for some time; but that had clearly been the result of the action of atmospheric air, and not the separation of the red particles or globules from the other constituents of the blood.

It seemed, notwithstanding the full consideration the various questions had undergone, that they had still two or three very important parts to decide; namely, the difficulty of producing vesication and suppuration, and also, the reason why the blood of the cow does not present a buffy coat; these were points he hoped the profession would not lose sight of.

The meetings were then adjourned until after the Easter holidays*.

APRIL 20, 1841.

Mr. GREAVES, V. P. in the Chair.

Mr. Hunt was elected a Member.

Mr. H. Daws laid upon the table an enlarged spleen, weighing twenty-two pounds and a quarter, which he had taken from a horse that had died of inflammation of the lungs. During life there were no indications by which he could have prognosticated the existence of this engorged viscus. The animal was in fair condition, and, up to the period of the fatal attack of pneumonia, his general health had been apparently good. There was much yellowness of the mucous tissues, and he anticipated finding some disorganization of the liver, but such was not the case; this organ was, therefore, merely functionally deranged.

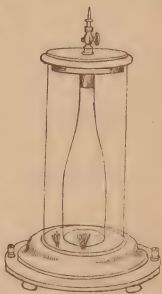
Mr. Daws also exhibited a fractured sessamoid bone. It was the outer one of the near hind leg. The animal was in the habit of striking this leg with the opposite one; but the fracture appeared to have been caused suddenly while the horse was going

* *Errata*.—At page 278, line 11, instead of “3vi vel 3viiij, pot. nit. 3ss,” read “3vi vel 3viiij, pot. nit. 3ss;” and, at page 280, line 13, should be “pulv. zingib. 3iij,” instead of “pulv. zingib. 3iij.”

down hill. In all probability a false step had been made, and the will and the muscles not acting in concert, this lesion took place. The pain was very acute, and resisted all the ordinary modes of alleviation: at length small fistulous openings made their appearance in the skin, whence synovia escaped. Extensive suppurative inflammation was also set up in the surrounding cellular tissue. The tendons ulcerated, and the fetlock now coming in contact with the ground, and all hope of an ultimate cure being at an end, the animal was destroyed. Upon examination, this fracture of the sessamoid bone was perceived to have taken place, and the contiguous parts were in the high state of disease now presented to the notice of the Association.

A fracture of the sessamoid bone he believed to be by no means a common occurrence; and he was pleased at having an opportunity of shewing one to the members.

The Secretary directed the attention of the members to his improved GALVANO-ARSENICAL APPARATUS, of which the subjoined sketch is a representation. The alteration, he said, consisted, *first*, in having but one tube instead of two, and this much larger than the original one: the advantages resulting from which are that a greater quantity of gas can be collected for examination; and the froth that forms when organic fluids are being operated upon more readily falls. *Secondly*, the electricity enters by a number of pointed wires instead of flat pieces of platinum foil; and thus the decomposition of the suspected fluid is more quickly effected. The analyst must, of course, be careful that he connects the gas receiver with the negative electrode, or the arseniuretted hydrogen that may be generated will escape. The oxygen may be allowed to mingle with the fluid in the outer vessel.



By this alteration he had been enabled to do without the use of sulphuric acid, thus removing all the objections that have been raised to nascent hydrogen as a test for arsenious acid. He confessed he had not found any substance that liberated such minute quantities of arsenic as sulphuric acid; but it would appear extremely desirable that, unless *absolutely pure*, some other agent should be substituted; for in some samples examined by Dr. Rees, in 20 fluid ounces he detected 22.58 grains of arsenic; and Mr. Watson, in the like quantity of another sample sent to

him, had calculated that no less than 97.416 grains must have existed. After a trial of many substances, he had ascertained that pure potash, or its carbonate or nitrate, may be advantageously substituted; the advantage being, that the arsenite of potash formed is more soluble in water than arsenious acid.

The method to be adopted in cases of suspected poisoning by arsenic is thus rendered sufficiently simple. Portions of the stomach that have been acted upon, or the contents of this viscus, or any other in which the poison is supposed to accumulate, are to be boiled in distilled water for half an hour, to which some potash, or its carbonate, is to be added. Being strained, the solution is then to be placed in the galvano-arsenical apparatus, and this connected with a galvanic battery, when, if arsenic is present, it will be given off in combination with the hydrogen, forming arseniuretted hydrogen, which is to be tested in the way already described by him. He ventured to express a hope, that his apparatus, in the hands of the medical jurist, would be found to answer its intended purpose. There was one circumstance connected with this mode of generating arseniuretted hydrogen, which, perhaps, should be pointed out, as otherwise, it might pass unnoticed. As electricity is the agent or power by which the arsenicum is eliminated, it follows that, whatever may be its state of combination, it would be developed, because this force not only effects the decomposition of the compound, but the metal is attracted by the negative electrode to be given off in union with the hydrogen.

The following 'Thesis, by MR. C. WILLS, was then read.

ON FISTULOUS WOUNDS.

Mr. President,—The subject I have chosen for this Thesis is one that deserves the strictest investigation, while it calls for more talent in its elucidation than I possess; nevertheless, I trust my deficiencies will be made up by an animated discussion. This has induced me to bring it forward; and I solicit the earnest attention of the members of this Association to it, because it is a disease that often baffles the endeavours of the most experienced, and, not unfrequently, when to all appearance the parts have healed up, they break out again, and prove as troublesome as at first.

Sinuous or Fistulous Wounds.

A fistulous wound may be defined to be a cavity or deep-seated ulcer, having one or more canals extending from it in various directions; and these, when of long standing, are lined by a dense membrane, which prevents adhesion of the parietes, and

from which there is a constant flow of unhealthy fetid or ulcerous pus. It may exist in different parts of the body, and it takes on a different name at each part. Some of these names are almost inexplicable, such as poll-evil, quittor, &c. ; but as they have existed so long, and are in such general use, it does not become me to attempt to change them.

Causes.

The causes which tend to produce this disease are many ; and, although it is not my intention to trace them all to their origin, being rather desirous of confining myself to the treatment of confirmed sinuses, as being the more useful object, yet I shall rapidly point out what appear to me to be the most common causes.

The parts most frequently affected with this disease are the withers, the poll, and the foot.

The Withers.

When the withers are the seat of fistula, the most frequent cause is pressure. This may arise from either the saddle, harness, pad, or collar ; the remedy for which, in the first instance, is often very simple, and consists in removing the cause, the effect then ceasing ; so that this stage demands very little treatment. But by frequent repetition of the cause, neglect, or maltreatment, the wound is often converted from a simple into a sinuous one ; or from the effused pus not being freely evacuated, but allowed to descend between the interstices of the muscles, from not having a depending orifice, which is of the utmost importance in every wound from which we have any discharge. At other times the abscess is deep-seated, and considerable mischief is done before it points, or before we are aware that matter is formed. In every case exit should be given to the imprisoned matter as early as possible, as there is nothing to fear from puncturing this part ; although our worthy patron, when lecturing on this disease, shewed us some specimens of what he termed enlarged bursæ of the trapezius muscle. With all due deference to Professor Sewell, I must object to the truth of this ; for I have never been enabled, although I have dissected these parts minutely, to discover the existence of a bursa to the trapezius or any other muscle situated thereabouts.

From continuance or inordinate pressure there are cysts often formed, containing a serous fluid, which, gradually increasing, is unaccompanied by much pain or inflammation ; and if you evacuate their contents they will fill again and again. The only remedy is to dissect them out : a very good example of this

occurred last session. The cyst was situated on the side of the nostril. It was evacuated, and subsequently dissected out by our President, who I am sure, if requested, will relate the case. The cause of the cyst in this situation I am unable to assign. I have very little doubt that the inflated bursæ shewn us by the Patron were specimens of this. I might here refer to another case, in which a large fluctuating tumour existed on each side of the superior spinous process of the anterior dorsal vertebræ. In the first instance, I am satisfied they only contained serum, and, had they been evacuated, would have done well, by giving such gentle pressure as would have kept their parietes in apposition. They were, instead, kept constantly wet with refrigeratory and evaporating lotions for ten days or a fortnight, at the termination of which time they were punctured, and a large quantity of coagulated serum resembling train oil escaped. I need hardly say, that by this time the parts within had become disorganized; and, although the subsequent treatment was scientific, and every attention paid, it was nearly three months before a cure was effected. Wounds and blows may also be the cause of fistulous withers; but I should say that such are of unfrequent occurrence. I believe the formation of the shoulder has a great deal to do in predisposing the animal to the disease.

Poll Evil.

The poll or superior part of the cervix is sometimes the seat of this disease. It is generally the result of blows inflicted by the horse himself or his attendants. For instance, a horse entering a stable through a low door suddenly elevates his head when half in, and, running back, strikes the back of his head or his poll against the upper part of the door. Many horses are in the habit of pulling the hay out of the rack, and eating it off the ground; and in some stables the rack and manger are placed in the corners of the stall, their bottoms projecting a considerable way from the wall. We will presume the animal to be feeding off the ground, and his attendant or some other person coming behind speaks to him; in elevating his head he strikes it against the bottom of the rack or manger. These, with the blows received from the butt-end of the whip or a heavy stick, sometimes used by brutal people to strike restive horses, appear to me to be the most frequent causes of poll-evil. The disease generally originates in a deep-seated abscess, which often makes considerable progress before the owner is aware that any thing is amiss. The first thing to be observed is, the animal experiences much difficulty in flexing his head or turning, and generally walks with his nose protruded, and he likewise evinces pain when pressed on the poll.

An active blister, with the assistance of a good purge, at this stage may cause it to terminate in resolution.

Quittor.

The causes of sinus in the foot are generally external injuries, such as bruises from the opposite foot, pricks from nails, &c. Corns are also enumerated when suppuration takes place, and the matter formed within the foot cannot find its way through the horny box, from its not being under the influence of the absorbents, so that it proceeds against gravity. It generally breaks out between hair and hoof, or the junction of the hoof with the integument, this being the most convenient and yielding part. When it is the result of a prick or bruise, giving free exit to the matter, and the employment of a few poultices, are all that are generally required. But we most frequently get quittor cases after they have exhausted the abilities of the groom or farrier. We may have a sinus I might almost say, in any part of the body, from bruises or punctured wounds, if the external orifice is allowed to close before the internal part fills up by granulations, or if the matter does not obtain a free exit.

General Treatment of Sinuses.

From some wounds in the first stage of sinus, a fetid watery discharge is poured out, which if corrected by an antiseptic agent, and excited by a traumatic, such as a weak solution of the sulphate of zinc, healthy pus will be secreted, indicative of the granulatory process going on: such a case generally does well. On the other hand, if this is neglected, or if a punctured wound is allowed to heal externally before the inner parts are filled up, a sinus is formed, and that before we are aware of any thing wrong going on. This is often the result in deep-seated abscesses, as I shall have occasion to remark more particularly hereafter. In this stage it will require a strong solution of zinc or sulphur, and even a saturated one may be necessary, in order that a sloughing of the membrane which surrounds the opening may take place. Some of the old school are aware that when they get away the core, as they term it, the case will do well: indeed, all that is generally necessary after the slough (unless the parts within have become affected and the disease has existed for a long period) is to keep the wound clean; nature then effects the cure.

In some cases there is but a very small opening, although the sinus may extend to a considerable depth. In such cases I generally introduce a small quantity of the bichloride of mercury, over which, if practicable, I apply a poultice. The bichloride

decomposes the parts with which it comes in contact, a slough is thrown off in two or three days, and in many instances, with the exception of simple dressing, this will suffice: at all events, we get a large orifice, by which we are better enabled to examine the state of the parts and to apply the necessary dressings. Another advantage is, that the matter will escape more readily. Various are the remedies that have been recommended, and many of them may be used with advantage. The solution of the nitrate of silver is a valuable application. In some instances creostote may be successfully used. Arsenious acid is a favourite remedy with those of the old school; but it is an agent I think the veterinarian can dispense with *in toto*.

The cruel practice of pouring boiling liquids into sinuses is one I have never seen and never wish to see: I should not recommend it, much less do it myself. The application I prefer is the following:—

The bichloride of mercury, and muriate of antimony sufficient to dissolve it: in this saturate a bit of lint, and introduce it into the wound. Although I have never seen this mentioned by authors, it is one with which I have succeeded in cases given up by pretenders, and some of which are very far advanced. I here refer more particularly to quittor.

It is, perhaps, worthy of remark, that we not unfrequently get cases from these “men of knowledge” at the very time that a cure is effecting. The increased discharge which generally takes place at this time awakens alarm, and they advise their employer to take the case to a veterinary surgeon; or perhaps the owner, incensed at the length of time the case has been in hand, and the frequently-renewed week or the fortnight which was to complete the cure, brings it to a veterinary surgeon: such cases very soon recover by judicious management.

The great object in the treatment of these cases—I might say the great secret—is to convert them into a simple wound, and afterwards treat them as such. Perhaps after all other remedies have failed, the knife will be found the most efficacious means for effecting our desired purpose.

Treatment of particular Parts.

I shall now refer to the treatment of those particular parts which I believe are more frequently the seats of this disease, and the common causes of which I have briefly pointed out, omitting two diseases of a similar kind; namely, phlebitis, the nature and treatment of which was elaborately given by Mr. Cartwright during the last session, and fistulous parotid duct, a disease

resembling fistula in general in its external appearance, but differing widely in its nature.

Fistulous withers:—The first thing to be done is to examine the wound by a probe, in order to ascertain what depth the sinuses are of, and in what direction they proceed; also whether the spinous process of the dorsal vertebræ or the ligament clothing them has become implicated. In cases of caries, the pus is highly offensive, and if a silver probe is introduced, it will be discoloured; besides which the surface of the bone will be rough to the touch. All these circumstances will guide us in forming a prognosis as to what length of time may, in all probability, be required to effect a cure, or whether the animal will be worth the expenses that are likely to be incurred. On principles of humanity, is it not better to destroy some animals than subject them to such punishment as is often necessary when the chances of cure are doubtful? I think these are queries which should suggest themselves to a veterinary surgeon, and that he should make his employer acquainted with the nature of the disease before he undertakes a case the cure of which is questionable, or one that may require such a length of time that the owner may be dissatisfied, and his professional reputation injured. In operating for fistulous withers, which consists in exposing the interior of the wound, we must notice the circumstances that occasionally prevent it: one is, when the sinus descends immediately under the scapula, then a seton should be passed from the most depending part; the reason of which is obvious. I recommend, when the knife is used at all to do it freely, dissecting away any callous portions that may be detected by the touch of the finger. The only bloodvessels in danger of being severed are the dorsal and posterior cervical. These vessels in a healthy state are not of considerable size, but consequent on disease they become greatly enlarged, and, knowing this, we should be prepared how to act. The operation should be performed in as short a time as possible, and the animal allowed to rise immediately: sometimes it will be necessary to assist him in getting up. The hemorrhage may then be arrested by compression; indeed, this in some cases may prove of the greatest service. Mr. Gray, of Edinburgh, relates two cases of a most desperate nature, on which he operated, and by compression obtained adhesion of the parietes of the wound, or, as it is technically called, healing by the first intention; but such is not generally the case, owing to the restlessness of our patients. I said insert a seton: this will afford a drain for the matter, and may also act as a counter-irritant: if, however, the spinous processes are involved, their amputation I believe to be the best plan that can be adopted, as the exfoliation of bone is a

tardy process. Having dissected away all the diseased parts, some digestive may be used, not disturbing the wound too frequently; but being particular in keeping it clean.

The process of granulation sometimes goes on too rapidly, and the granulations are of a fungoid character: these would never become organized. Under such circumstances, the application of a blister around the wound is of infinite service, as the granulations which are subsequently formed are firm; besides which it also acts as a counter-irritant. Occasionally there may be a particular part which is not granulating so fast as the rest, and from which the discharge is unhealthy. If this is contiguous to bone, fears may be entertained that the bone is still in a state of disease, and that there is yet a portion to come away; and then our surgical instruments may again be called for. If the place whence this unhealthy discharge is secreted is not adjacent to the bone, apply a little of the bichloride of mercury or the nitrate of silver, and, over the whole, a poultice. In cold weather the granulatory process will be much facilitated by keeping the part warm. The granulations should never be allowed to rise above the surface, but kept as nearly on a level with the surrounding integuments as possible. When they get too luxuriant, the sulphate of copper will be found sufficiently active for their reduction; but should a more powerful caustic be required, it will be found in the nitrate of silver. When the surface is brought to a level with the surrounding skin, I should recommend it to be dredged with flour, which will absorb the moisture that otherwise irritates and keeps up a degree of inflammation in the part that is not desirable. A weak astringent may sometimes be admissible, such as a solution of the sulphate of alumina and potassa, after which I have been in the habit of using finely-cut lint, which causes the formation of a sort of scab, only to be removed when loose, or that we fear the granulations are getting rather luxuriant.

Poll-Evil.

When speaking of the causes of this disease, I said that it generally commenced by a deep-seated abscess; and, perhaps, it may not be amiss here to take a slight view of the nature of abscesses generally. An abscess is a collection of coagulable lymph, or adhesive matter, poured out by the vessels in order to relieve themselves from distention, causing swelling and tension of the part, with an elevation of temperature, and producing pain on pressure. Now, it is in this stage that I think blistering, bleeding, and cathartic medicine may be available in the dispersion of an abscess; but not after the deposition of pus has commenced, which, in some cases, soon takes place, but in others is more tardy, as I

have frequently observed in glandular structures. The deposition of pus first takes place in the centre of the tumour, the pressure of which excites the absorbents to remove the surrounding parts. This deposition of pus and absorption continues until the abscess points, and this, according to Nature's law, is almost invariably to the external surface. This process may be assisted by gentle stimulants, poultices, &c. When we wish to induce the formation of pus, we should be careful not to bleed or purge, but allow the animal nutritious diet. An abscess formed in the region of the poll should be evacuated of its contents as soon as they are found to fluctuate, and, if practicable, a seton should be passed from the top to the bottom, in order to ensure a free exit of the matter. This being done in the first instance, we need not apprehend further danger, being careful, however, to keep the parts clean, and excite healthy action by digestives. Surgical operations are not so admissible in this situation as in fistulous withers. When they are had recourse to, the opening should be made in the direction of the fibres of the muscles. The only vessels likely to be severed are branches from the vertebræ, and not the main conduits themselves, these being deeply seated. Sometimes the bones are affected. When such is the case, we generally have an osseous deposit, and not exfoliation. This should be combatted by counter-irritation. The cavity being laid open, the treatment for fistulous withers will apply here. The root of black hellebore has been advocated by some practitioners; but as I have never seen it tried, I cannot speak of it in commendation or otherwise: probably there are some members present who may have been in the habit of using it, and their information on this head will be esteemed.

Quittor.

The foot is a part in which we not unfrequently meet with a sinus. A horse may unexpectedly fall lame, and it may be some days before the true seat of it is discovered. In other cases, the sinus may have existed for some time before the lameness shews itself. There are instances when it occurs under the immediate care of an experienced practitioner, and is easily overcome.

In the first instance, when the sinus extends for some distance, and has but a small opening, I introduce into it a little of the bichloride of mercury rolled in a bit of thin paper, and over this I apply a poultice. In two or three days the decomposed part sloughs away, and unless the bone or cartilage is previously diseased, simple dressings will now suffice. Not unfrequently the lateral cartilage on the diseased side becomes absorbed, and bone is deposited in its stead. This will participate in the disease, and

we shall then have caries and exfoliation. Sometimes the coffin bone is involved. Such cases are tedious, and occasionally a separation of the horny and sensitive laminae takes place. The best thing to be done here is to dissect away the disunited portion, and apply a bar-shoe, not allowing it to come in contact with the affected quarter. A high-heeled shoe may sometimes afford the animal great relief. For injection into the sinuses, in the majority of cases, a saturated solution of the sulphate of zinc will be found sufficient. When a stronger is wanted, a piece of lint saturated with the compound of the muriate of antimony and bichloride of mercury, already adverted to, may be used. In operating on cases of quittor, care must be taken not to cut away or injure the coronary substance, otherwise after a cure is effected there will be a partial or perhaps a total loss of the secretion of horn. There is one more occasional concomitant of quittor which I shall slightly mention, and then draw to a conclusion: indeed, I fear that I have already exhausted your patience. What I allude to may of itself be considered a disease, and certainly it has been fully commented on by Mr. Litt in his Essay on the hock-joint. I mean, open joint, for which powdered alum and quick lime have been recommended and to which I would add a compound I have been in the habit of using with much success, viz. pipe clay $\mathfrak{z}\text{j}$, and alum deprived of its water of crystallization $\mathfrak{z}\text{j}$; made into a paste with tincture of opium. This compound possesses great tenacity, and may be applied without the aid of a bandage, simply plastering it over the wound.

Although fully aware of the imperfection of these remarks, I subject them to your notice; and if they but excite you to the consideration of them, I shall feel myself amply rewarded for my trouble.

I have the honour to be, &c.

The Author of the Essay, in reply to some interrogatories, said, in cases of long standing a canal or canals would be found to exist, lined with a dense membrane; this consisting of the cellular tissue, that previously united the parts together being condensed. Sometimes it seemed to pour out a mucous secretion, but it was only very slightly organized, and, consequently, the healing process was with extreme difficulty excited in it. It was, therefore, always the better plan to remove it either by the knife or caustic. In appearance, it was not unlike the cicatrix formed after a wound. The "core" of the old school was nothing more than condensed cellular tissue; and it was well known that until this was got rid of the wound would not heal.

The distended bursæ exhibited by Professor Sewell, in his lectures, he considered nothing more than so many cysts lined with a membrane analogous to that which invests an hydatid. He was decidedly of opinion, that, in a normal state, there were no bursæ in the trapezius muscle of the horse; and not only had he carefully dissected with a view to find them, but he could not see their utility in such a situation; for, when the muscle alluded

to acted, it elevated the scapula, and had not to pass over any other bone in the performance of this function.

In this opinion Mr. Wills was supported by several members.

Mr. Litt thought that, as there was much motion in this part, the necessity for bursæ was shewn; but he candidly confessed that he had never been able to demonstrate their existence by dissection; yet, since they are so common in other muscles, he could well conceive of their existence here.

Mr. Wills stated, that the quantity of cellular tissue here met with allows of perfect freedom of motion, and supersedes the necessity of having bursæ.

Mr. Greaves.—A bursa mucosa is usually described as a small sac, containing a fluid for the purpose of lubricating parts when in motion, so as to prevent friction. Many of them are situated contiguous to the insertion of muscles for this purpose; but the insertion of the trapezius shewed that they were not called for, its tendon being inserted into a small eminence or tubercle upon the spine of the scapula: thus it was prevented from coming into contact with the other portion of the spine of the scapula, over which it passes; this becoming less projecting from the tubercle, so that a space was left between the tendon and the bone; therefore, although there is lateral action of the scapula underneath this tendon, yet a bursa is not required, there being sufficient cellular membrane for the purpose of admitting all required motion.

Mr. White.—Poll-evil has been defined to be a bursal disease, consisting of inflammation and suppuration of the cysts met with about the region of the atlas; was it not, then, fair to infer that fistulous withers were of the same character?

Mr. Wills was ready to acknowledge that bursæ were found under the ligamentum colli, in the region of the atlas: still he was not of opinion that poll-evil was a bursal affection. He had said in his paper, that it commenced in a deeply-seated abscess in the cellular tissue, and, the pus being imprisoned for some time, diseased action was set up in the surrounding parts, and the sore became fistulous. The mechanical action that took place as the tendons of muscles and ligament of the neck played over the atlas shewed the necessity of bursæ here.

Mr. Whitwell suggested the introduction of a curved and grooved needle into the tumour before it was opened, in order to ascertain whether or not it contained pus. A blister in this stage was advocated by several members, by which either the tumour would be dispersed or the suppurative inflammation induced.

Mr. Pratt had frequently resorted to the use of blisters with considerable benefit; and not only in this stage, but when there was a tardiness of action or sluggishness in the wound.

Mr. Godwin had successfully employed them when the granulations were of a loose, spongy character; or when, in parts of the wound, granulations did not shew themselves. He applied them pretty freely around the sore, and their beneficial influence, he considered, depended upon their stimulating the bloodvessels to throw out more healthy matter—in the same way as, when they are applied to the coronet, they cause a greater secretion of horn.

Mr. Wills.—When the granulations are of a fungoid character, the stimulus communicated by a blister tends to render them healthy, by consolidating them; otherwise they never cicatrize.

Mr. Litt contended that another explanation must be sought for in the *modus operandi* of a blister in fungous granulations; for they are already too vascular: touch them, and they bleed.

Mr. Wills explained, that his observations had reference to the granulations subsequently thrown out: those that existed prior to the application of

a blister were to be removed, either by some caustic agent or a knife. It is the new granulations that become solidified, and not the original loose and spongy ones.

Mr. Swinerton thought the effect might be produced by the discharge caused by the blister. As it respected the sinuses, he would lay them open, remove the thickened parietes, and then treat merely as a common wound.

Mr. Greaves was of opinion that the blister, by producing a swelling, compressed the parts, thus tending to excite the healing process; and this even to the bringing about adhesion of the sides of the sinuses, which may be seen lined with a glistening membrane formed by the condensed cellular tissue, as explained by *Mr. Wills*, and which sometimes possesses much callosity, from the matter constantly passing in one continuous course to find an exit. That it exists prior to the application of a caustic agent, or is not merely a slough, as some have supposed, is proved by the fact, that if you slit a sinus up you may readily detect its existence.

Mr. Wills.—In opening an abscess, I should prefer doing so in the course of the muscular fibres, and not across them. By the use of caustics, my desire is to remove the lining of the sinus, or the walls of this tube, after which digestives may be successfully called into requisition.

The time of adjournment having arrived, the further consideration of the subject was postponed until the next meeting.

TUESDAY, APRIL 27, 1841.

Mr. NORMAN, V.P., in the Chair.

Messrs. Quallett and Platts were elected Members.

The following letter from Mr. J. R. HOEY, V.S., Hon. E. I. Company's Service, was read.

On looking over THE VETERINARIAN I am exceedingly sorry to find that there are so few Indian correspondents. Perhaps it results from the opinion entertained by some of the present day, that any thing emanating from an Indian officer can be of little or no value. Still, however, I think that if some of our older hands would give us an account of a few of the diseases incidental to India, and also their treatment, it would not only be rendering a valuable addition to that excellent work, THE VETERINARIAN, and a benefit to the profession at large, but young practitioners, arriving in this part of the world, would be very glad to receive such a gift from their hands. I will transcribe a case or two from my note-book, if you deem them worthy of the attention of the Association.

KUMREE.

On the morning of the 14th of last November I was called in to see a dark brown buggy mare, seven years old, the property of

a brother officer. I found her down; the pulse a little above the regular number, and but slightly altered in tone. The extremities were cold, and the hind legs thrown from under her, as if they did not belong to her. The mucous membranes were highly injected. The groom said that she had received "a stroke of the wind" during the night, and had thus lost the power over her hinder extremities.

The owner told me that he had driven her out on the previous evening, and on trotting along she had suddenly stopped short upon her haunches, as though she had injured her loins, but, being warm, she went on again and finished her journey. He thought no more about it, and she was placed in her stable for the night. This statement led me to suppose that she had injured her spine, or that the nervous system was in some way deranged; although, allow me to tell you, that we have many cases of animals losing the power of their extremities, and, particularly the hinder ones, during the night, which the grooms and smiths here call *a stroke of the wind*.

She was struggling to get up, and, with a great deal of assistance, I got her on her legs. In her struggle to rise she had broken out into a profuse perspiration, and the pulse had risen to 80. I bled her to the amount of four quarts, and gave her nine drachms of aloes combined with ginger, and ordered a mash for her. I also applied a strong mustard poultice over the loins, and applied hot fomentations, rubbing and bandaging the legs, and then left her apparently better.

Nov. 15th.—The medicine has not operated. The pulse, which had fallen after the bleeding, has risen again to 80, and is full. The mucous membranes are more highly injected, and the extremities still cold. I gave another ball, and had recourse again to injections, &c. I also renewed the poultice, and abstracted four more quarts of blood—two quarts from the saphena major of each leg. After this she seemed a little easier, and towards evening was down again.

16th.—The medicine has not yet operated, and the pulse is nearly 90, but not strong. I gave twenty drops of croton oil, clysters, &c. Portions of hard dung were afterwards evacuated with considerable difficulty. The patient is struggling violently to get up. With much difficulty we got her on her legs, but she was very rickety, and hardly able to stand. I placed setons over the loins.

17th.—Down, evidently sinking. The pulse much the same in number, but stronger. Breathing hurried—heaving at the flanks, frequently breaking out into profuse perspiration. The aperient medicine has not acted more than was described yesterday. I

saw no chance of saving her, nevertheless, I would not give her up. I administered three tobacco clysters; some hard concocted masses of faecal matter came away with them, and at every expulsion, the urine was voided involuntarily. She remained in this state during the day, and died at night.

Post-mortem examination. The whole of the thoracic and abdominal viscera were healthy, except the stomach, which was very much thickened in its coats, and contracted in the centre, cross-ways, like a stricture. Two small abscesses adhered to the colon, but these could not interfere materially with her health. There was no inflammation of any vital organ. The fæces were soft throughout the alimentary canal, until I came to the rectum, where they were congregated in hard masses.

I next examined the spine, and could not find any appearance of injury; but there was effusion of serum to the amount of several ounces in the theca vertebralis. I am sorry that the brain was not examined; but I was very unwell at the time at which this poor animal died, and therefore did not proceed farther. I had, however, found in the effusion sufficient cause of death. She was a very fast mare, and had previously enjoyed good health.

RUPTURED STOMACH.

I have had, in the course of the last six months, four cases of ruptured stomach, which I think to be owing to the kind of food given to our horses, and to the little work they get. They live a great deal upon *gram*, which, eaten in any considerable quantity, is apt to swell in the stomach, and even to rupture it.

June 4th.—A bay horse was brought to the infirmary with symptoms of violent gripes. The pulse was 86 or 90. Respiration was difficult, and, at times, he would break out into profuse perspiration. At other times he would appear to be lost to the impression of all surrounding objects.

I immediately ordered him to have both jugulars opened, and to be bled to the amount of nine or ten pounds. Six drachms of aloes were likewise administered, with ginger, and frequent enemata were injected. He had not been long in the hospital before I observed some food beginning to be discharged through the nostril. I no sooner observed this than I was assured that he would die, which he did in twenty-four hours from the time of his being taken ill.

The abdominal and thoracic viscera were sound, but the stomach was ruptured, to the extent of three or four inches, in its villous portion, and nearly the whole of the food had made its escape into the abdomen, and a great part of it was between the omentum. There were large patches of inflammation on the inside of the

stomach, and there were evident traces of other attacks of a similar but milder character. The abdomen contained eight or nine gallons of fluid, in addition to its more solid contents.

The result of the other cases was the same as this; and in all of them there was slight disease of the liver.

The following, from Mr. WRIGHT, V.S., of Burnham Overy, was then read.

Dear Sir,—The stomachs I have sent you for inspection were taken this day from a calf. Twelve calves are already dead, and more are dying. The reason of my sending them up is, that I meet with many cases of the like kind, and I cannot satisfactorily assign the cause. I have seen seven cows die in one yard; and the indications after death were the same. Four bullocks were lost this last year on the farm where these calves are now dying. Of sheep I have seen scores, in my time, die in the same way. I have had the stomachs tested by a very able chemist, but no poison could be found. I have always considered it arose from some acid generated in the stomach and alimentary canal. Twenty of these calves were bought in London; and I understood they lived on gin and milk coming down. Soon after they arrived they were allowed sago and milk. In a few days they began to scour. A veterinary surgeon was sent for, who changed their diet to milk-flour. It was a month back when they were first taken. If you can inform me what the cause, in your opinion, is, you will greatly oblige

Your's, most respectfully.

Mr. Ernes considered that the lesions which presented themselves were only such as might be anticipated would supervene on an inflammatory attack involving the mucous tissues: probably it was gastro-enteritis. The small size of the rumen indicated that, as yet, this compartment of the stomach had been called into but little exercise; it was precisely such as a young ruminant would possess. In it there was no appearance of disease. The second and third divisions also exhibited the same healthy condition; in fact, these compartments have little work to perform until the animal partakes of solid food. In the fourth, we have traces of inflammation, and likewise a slight enlargement of the glands. Probably this was even more marked in the course of the intestinal tube, and the cause might have been the alcohol that was administered. He could not think that any poisonous agent had given rise to this abdominal state of the mucous tunic.

The Secretary thought the suggestion of Mr. Wright, that an acid was generated in the stomach, &c., and had become the cause of diseased action, was in perfect consonance with correct pathology and fair analogical reasoning; for it is well known, that when mucous membranes are inflamed, they pour out an acid secretion. Hence the value of antacids, such as chalk, combining them with astringents; which, by acting indirectly as tonics, bring about a healthy state of the digestive apparatus. He concurred with Mr. Ernes, that there was not disorganization of the tissues to a sufficient degree to warrant the suspicion of any poisonous drug having been given.

Mr. Twinberrow also considered that these were cases of diarrhœa, induced by the gin and milk on which the animals had been fed, acting as an irritant to the bowels. For fattening of calves, they had been in the habit of giving gin with flour, in the form of balls or masses when nothing like super-purgation had taken place, and oftentimes the reverse.

The following letter from Mr. CLIMENSON was subsequently received, but is introduced here for the sake of *entirety* :—

Dear Sir,—At the request of Mr. Wright, my preceptor, I will endeavour to lay before you the particulars respecting the calves he wrote to you about. I suppose he informed you that twenty of them came from London, two they bought in the neighbouring village, and four they bred on the estate. Those that came from London were, during the journey, fed on gin and milk. Immediately upon their arrival they, with the two that were bought at home, were allowed no other diet than sago and milk; but after the space of three days, they were all attacked with diarrhœa. This effect might have been attributed to the gin, were it not that the two that were bought at home never had any. I do not consider it can be referred to the epidemic, for the four bred on the estate would have been liable to have taken it also, as they were in an adjoining house; in fact, one of the diseased calves was put with them. A veterinary surgeon was sent for as soon as the proprietor saw the state the animals were in. He at first recommended flour, to some he gave starch, and to others oleum ricini. This treatment he pursued for seven days, when four of them died. Being then sent for, we administered to each creta preparata $\mathfrak{z}\text{ij}$ in thin starch, ordered them to leave off giving sago and milk, and substitute oatmeal gruel and a decoction of linseed. On the following day we gave to each tinct. rhei $\mathfrak{z}\text{vi}$; but they still continued to purge, and some died. We then gave more creta, with opium and zingiber, but could not prevail on the owner to

withhold milk any longer. We examined every one after death, and found the coats of the stomachs in the state you saw the specimen we sent: the fourth stomach of one we found in a state of ulceration; the intestines of all were slightly inflamed. There are thirteen dead; the remaining ones are slowly recovering.

I will now relate a case that occurred on the same estate in the early part of the winter. They had then twenty-two bullocks that were taken from grass and put on white turnips and hay, being allowed no water. After they had been on this food four days, on going into the yard on the fifth morning one bullock was found to be dead. We were requested to examine it, and found the food quite dry and hard in the first and second stomachs, and also in the manifold: the fourth stomach was inflamed, the inner coat peeling off in the same manner as that of the calves.

We then proceeded to examine the living ones, and found three more in a dying state. To two we gave $1\frac{1}{2}$ pint of castor oil each, and to the other Epsom salts and sulphur $\mathfrak{z}$ viij each, with $\mathfrak{z}$ j carbonate soda. We saw them again in the evening, and gave to each a pint of linseed oil, but could not get the bowels to act, and they all three died during the following day. Their stomachs were in the same state as the first one that died. The remaining eighteen we purged with salts and sulphur, and changed their food. They all recovered.

I confess I feel a degree of diffidence in addressing you, being fully aware of my incompetency to do justice to a subject of so much importance; but I hope this imperfect account may prove of service, by eliciting from others their views of the malady.

I remain, dear Sir, &c.

Mr. ERNES then directed the attention of the Members to a fractured navicular bone.

"The subject," said he, "from which the morbid specimen I have ventured to lay before you was taken, was an aged brown gelding of the cart-horse breed. Last autumn he received a wound in the left hind foot, which was inflicted by a stable-fork. It appeared from the information I received, that, while the boy was bedding him down, he kicked at him, and in self-defence the boy held the fork out; and so violent was the blow, that the handle of the fork was forced through a wooden partition. The prong of the fork entered the foot at the outer and lateral part of the frog, to the depth of about two inches. I had no doubt but the flexor tendon had been penetrated; but whether the articula-

tion of the foot had been injured or not, I could not ascertain. The animal seemed in great pain, and was unable to put the foot to the ground. The owner wished the horse to be quickly cured, but the progress, as you may easily judge from the nature of the wound, was very slow; in consequence of which, in about three weeks afterwards, the horse was given up to me, the owner being unwilling to go to any further expense. The wound healed up after some time, but considerable lameness remained. I had recourse to a frog seton, but without any good resulting; I therefore determined to try what the division of the plantar nerves would do. I was kindly assisted in this operation by Mr. Daws. It had the effect of totally removing the lameness, and as soon as the incisions were healed up the horse went to work.

In about a month afterwards, the horse was sent back to me very lame in the same limb. I carefully examined the leg and foot, but, to my great disappointment, could not find out the seat of the lameness. I naturally referred this second lameness to the leg, there being no sensation below the place where the division of the nerves was made: it was poulticed from the hock downwards, and afterwards blistered, and in about three weeks the horse went to work again. The next day he most unfortunately received a kick on the same leg from another horse, and the consequences being likely to terminate fatally, I had him destroyed.

On post-mortem examination I found the navicular bone fractured in several places, but a partial union, as you see, had taken place. The cartilage on the under surface of the same bone is completely absorbed, and the tendon of the flexor pedis muscle closely adheres to the bone. The posterior ligament is ossified. The articulation of the last phalange was healthy in every part.

This case also shews how soon the nerves will unite. The operation was performed on the 19th of January, and the horse destroyed April the 10th, but, as you observe, their union is complete. A small knot is observable on the point of the section. I have closely examined these knots: they seem to be composed of a dense cellular tissue, in which I could trace no appearance of nervous substance. This appears to be further confirmed by the fact that sensation was not restored to the foot; for the day before the animal was sacrificed, I plunged a lancet into the heel and coronet to the depth of an inch or more. The blood flowed freely, but the animal evinced no pain. A nail and pin were also tried, but with the same result.

The consideration of Mr. Wills' Thesis on Fistulous Wounds was then resumed.

Mr. Sansom, with a view to the opening of the discussion, would ask *Mr. Wills* if a bursal sac under a state of inflammation really secreted pus? He was inclined to think many cases of poll-evil essentially bursal disease, and from opened bursæ of the hock joint he thought he had seen pus secreted: if so, the lining membrane partakes of the character of a mucous membrane rather than that of a serous one.

Mr. Wills reiterated his disbelief in the bursæ about the poll being primarily affected, and therefore, in his opinion, poll-evil is not essentially a bursal disease. It originates in a deeply seated abscess, as he had before said, and, secondarily, the ligamentum colli and the bursæ are involved. It is this that often—too often for the practitioner—makes these cases so protracted. Ligaments are much less highly organized than muscular parts; consequently, when they become diseased, a restoration to health is but slowly brought about in them. He was rather inclined to view the lining of the bursæ as being analogous to a serous membrane, a bursa being a circumscribed cavity; still, if an opening is made into it, he thought such an active state of inflammation might be induced as would cause the secretion to simulate pus, if it were not identical with it. He should, however, long hesitate before he ventured to open a bursal sac, from the degree of constitutional disturbance that usually supervenes on the performance of the operation.

Mr. Litt.—Do I understand *Mr. Wills* to say, that, when a serous cavity is laid open, it will secrete pus?

Mr. Wills.—Although this is a disputed point, yet he thought such could take place. When a synovial membrane is exposed, the air, acting as an irritant, would cause such an amount of inflammation that pus would be secreted from it.

Mr. Ernes considered such a change very unlikely in reality to take place; for although there might be a resemblance in the fluids poured out from the two tissues under different degrees of inflammation, yet by careful investigation sufficient difference would be detected. These, perhaps, must be seen to be described; at any rate, description would at best be imperfect. In mucus we have no globules—in pus we have; and these are rather larger than those met with in the blood. The inflammation that supervenes on wounds, &c. of serous membranes is of the plastic kind: lymph is secreted, and albuminous bands form, bringing about adhesion of surfaces, whereas mucous surfaces, it is well known, take on the suppurative inflammation. *M. Leblanc* has instituted many experiments to prove this, and, by the injection of fluids into the cavities of the chest and abdomen of cows, he had found only the plastic inflammation to supervene; and the wounds have healed either by the adhesion of their edges, or, when these were separated, by bands of lymph. In cases of wounds in the abdomen there is no pus thrown out from the lining membrane, but the skin and adjacent muscles do so, and this has led to the mistake. Again; we have instances in which portions of the intestines have been removed, and, were it not that adhesion quickly takes place between the divided edges, we should have the faecal matter passing out into the abdominal cavity.

In the treatment of fistulæ he strongly advocated the making of counter-openings in the most depending parts of the wound, so as to give free exit to the pus, being, of course, careful that no bloodvessels are wounded.

Mr. Sibbald inquired what treatment *Mr. Wills* would adopt when the bursæ had been opened accidentally, or by ulceration. Instances had occurred when, to all appearance, the wound had healed, and yet in the course of a short time it had burst out again, and this had occurred more than once or

twice. Sometimes, too, sinuses were seen deeply burrowing among the muscles, where the bistoury cannot be introduced; under such circumstances, what is the most commendable course of procedure?

Mr. Wills.—When practicable, the opened sac should be removed either by the caustic or knife; the latter he preferred. Through deeply-seated sinuses he would advise the passing of setons, bringing them out at the surface.

Mr. White had seen cases in which, from the amount of ulceration that had taken place, a complete division of the ligamentum colli as it passes over the atlas had been effected, and there was a depression of the head; yet ultimately these cases did well.

Mr. Sibbald had seen similar cases; but the constitutional disturbance had run so high, that the animal had died of irritative fever.

Mr. Ernes had observed, that in simple division of the ligament of the neck no depression of the head had taken place, the muscles being sufficient to retain it in its natural position. He objected to the system resorted to by some, of frequently probing these wounds, and removing by the knife portions of the ligamentous and other tissues. He thought it would be far better if Nature were allowed to carry on her own work. She may be a little longer than is thought necessary by some, but by our interference with her we often check rather than hasten the curative process.

Mr. Wills, too, thought the common custom of often dressing such wounds objectionable. Once every second or third day would be frequent enough, after healthy suppurative action had been set up in them.

Mr. Greaves was of opinion that, in fistulous withers, the ligamentous structure and the bones were the first affected, and an abscess was subsequently formed in the cellular tissue by extension of inflammation. The low organization of the first named structures prevents the development of the disease that is going on in the first instance; but as soon as the other parts become involved, we have the usual indications.

Mr. Wills, if he allowed this to be the case, could only suppose it to be the result of an injury inflicted upon the spinous processes of the vertebrae by a blow or otherwise. He had seen many cases in which portions of bone were removed. Process after process was extirpated, until several were taken away; and not until then could a healthy state of the wound be brought about.

He had forgotten to advocate in the first stages of fistula, while as yet there were only the symptoms of simple phlegmon, scarification and punctures, by which the distention of the vessels would be considerably relieved, and, perhaps, resolution brought about without even suppuration taking place. Should, however, an abscess form, he would immediately evacuate it, and, by giving pressure, endeavour to bring its parietes in apposition, so as to induce them to adhere; or an exciting and astringent compound might be injected, such as a weak solution of the sulphate of zinc.

Mr. Ernes also strongly recommended deep punctures in the first instance, by which he conceived much suffering would be prevented, and particularly when the matter had to find its way through dense fasciae or ligaments. The small quantity of pus which then escapes affords marked relief, and the disorganization of surrounding parts is in a great measure prevented.

MAY 4, 1841.

Mr. Sansom, V.P., in the Chair.

Professor Magne, of Lyons, presented to the library the following publications:—

“Multiplication, Eleve, Entretien et Engraissement du Porc.”
“Recherches sur les Fromageries de Société, &c.”

The following letter from Mons. Eléouet, Secretary to the Veterinary Society of Finistère, was read.

Morlaix, April 20th, 1841.

Sir, and most honoured colleague,—I have to acknowledge the receipt of the books you directed to me for the Veterinary Society of Finistère. They were laid on the table at a meeting held on the 15th instant. The members expressed their high sense of gratitude for the distinction shewn them by the Veterinary Medical Association of England, and instructed me to convey their thanks to the President and Members, and to you in particular for your two valuable productions.

I beg also to thank the Association, in my own name, for the honour they have done me by electing me one of their honorary members, a title of which I shall ever be proud, it having been conferred upon me by an Association which now occupies a distinguished place among scientific societies generally; and I will endeavour to render myself worthy of the name, by contributing my humble share, so as to extend the boundaries of a science to the study of which I have devoted my life.

I have forwarded the letter you inclosed in mine to our President, but I have not seen him since. He resides at some distance, and a bad state of health does not allow him to travel much.

It is with the greatest pleasure I have the honour to inform you, that on the proposition of my honourable colleague M. Kerzèan, and seconded by me, the Veterinary Society of Finistère has admitted you and your worthy President as honorary members. The proposition was received with the greatest applause, and the election was unanimous.

I have forwarded by the usual conveyance your respective diplomas, with the annals of the Society for 1840, for your Association; and also two copies of the annals of the Society for 1839 and 1840, as well as two productions of my own, which I beg you to accept from me as a token of my gratitude. I likewise request you to present the same numbers, of which I have sent duplicates,

in my name to your most honoured President. The whole is directed Port Franco, and, I hope, will reach you in safety.

Accept, Sir, the consideration of my high esteem, &c.

J. H. ELÉOUET,

Perp. Secretary of the Veterinary Society of Finistère

To Mr. Morton.

To this succeeded

AN ESSAY ON TETANUS.

By Mr. J. WILLIAMSON.

Gentlemen,—Of the numerous diseases to which the horse is liable, there is, perhaps, no one more formidable or less under our controul than that which forms the subject of the present essay; and although the case-book of the veterinary practitioner may not furnish us annually with a long series of instances of tetanus, nevertheless these, however few they may be, are sufficient to warn us that we have an untoward malady to encounter, insidious in its attack, rapid in its progress, and bringing death almost invariably upon its victim. In order, then, to combat against this affection with any chance of success, bold and active means must be had recourse to. “Time must be taken by the forelock.” “Delay is dangerous.”

If an opportunity was afforded you of administering medicines, and you did not do so, the small, and probably the only chance you have of saving your patient, is for a certainty lost; and all your efforts of treatment afterwards will tend only to inflict torture for no purpose.

Muscles possess a peculiar property, denominated contractility, imparted to them by means of those slender white cords, termed nerves, which emanate either from the brain or spinal marrow. These nerves are divided into those of sensation and of motion, each class of nerves having its origin in different parts of the brain or columns of the spinal marrow; but before they have issued from out of the bony canal, the two classes become united, so that we have compound nerves endowed with the two distinct functions. Should, then, an excitant be applied, either directly or indirectly, to any part of one or more of the cords, the consequence is an increase of the nervous energy, and, if severe, causing the muscles to become spasmodically and rigidly contracted. Tetanus is said to exist when the whole of the voluntary muscles are affected; but when the affection is confined to the muscles of deglutition, and those moving the lower jaw, *Trismus* is the term made use of.

This is in the horse, at least so far as I have seen or heard, a very rare occurrence, having seen but one so affected. Tetanus is divided into traumatic and idiopathic; the former following wounds, the latter the result of cold applied to the surface of the body without any lesion of the surface. I have seen it follow a lacerated wound over the eye, accompanied with partial fracture of the zygomatic arch, from a wound in the inside of the haunch, from pricks in shoeing, and from docking. I have heard of it following milking and castration. It is more frequently the sequence of wounds in tendons or ligaments than any other tissue. When traumatic, it generally makes its appearance while the wound is suppurating or cicatrizing; but this does not hold good in every case, for it sometimes shews itself before suppuration is established, and, upon examination of the wounds which were believed to be the source of it, the suppurative process did not appear to have taken place, as the wound partook more of the character of sphacelus, being completely studded with dark purple spots, and discharging a sanious fluid of a very unhealthy nature.

The symptoms, then, may be either quick or slow in their progress. The horse may be well over-night, and next morning he may be found labouring under a severe attack of tetanus; or the disease may be seen advancing step by step, gaining ground slowly but surely.

If traumatic, the wound is generally more tender than usual; it looks rather unhealthy, and considerable pain is evinced if pressure is applied for some distance round the wound. But at this stage of the disease nothing is dreaded, nor is tetanus for a moment thought of, unless it is by those whom experience has taught to think otherwise. It is now that their eyes are opened, when, perhaps, upon making the animal turn round in his stall, they are surprised to find him do so with great reluctance and very awkwardly; and should he be led out, are at a loss to account for his going with his hind legs so much wider apart than they were wont to be, and for his carrying his tail so erect.

Now, then, they must have advice. If a farrier is sent for, as is too frequently the case, the malady is, as he thinks, soon made out: the horse has for a certainty got "a strain across the kidneys," inflamed bladder, or some such thing.

An instance came under my own observation, in which tetanus was mistaken for acute founder, and treated accordingly. But should a veterinary surgeon be called in, mark the difference: one look for him is sufficient. The mischief is too easily seen, and cannot be mistaken. If observed early in the disease, the pulse, upon examination, will be found varying between forty-five and fifty beats in some, and of a wiry feeling—his ears slightly ele-

vated—the head protruding, with the nostrils slightly expanded—an anxious countenance—the breathing slightly accelerated, and limited. If he is made to walk, his hind legs will straddle, and a stiffness be observed in the body.

As the disease advances the symptoms will become more marked: the nostrils will be more expanded, the head straighter, and ears more erect; the haw will be thrust partially over the eye, the jaws nearly fixed, and saliva constantly dribbling from the mouth. The neck is stiff and rigid, the breathing laborious, the belly tucked up, the tail erect and quivering; the legs will appear like four posts supporting a stiff and immovable body; the bowels constipated. The pulse becomes quicker and weaker. Towards the latter stage of the disease the pulse will be irregular, and scarcely perceptible, the breathing quick and most laborious, the jaws completely locked, the tail still more erect and shaking, belly also more tucked up, and, when made to move, every step the patient takes is likely to bring him to the ground: cold sweats now come over him; his eyes become sunk; the breath and mouth cold; convulsions supervene; and death soon puts an end to his miserable existence, or he sinks from complete exhaustion.

The symptoms of idiopathic tetanus do not differ from those already mentioned, excepting that they generally make their appearance much more suddenly, run their course much more rapidly, are more diffused, and, if the horse survives beyond the seventh or eighth day, a favourable result may be looked for, but the amendment is tediously slow. This will be seen by a partial cessation of the tetanic symptoms generally; and a very good criterion is that, when approaching the animal, his pulse is not at all affected by it, shewing that the general excitement does not run so high.

The symptoms of Trismus are, a stiffness of the neck; inability to move the lower jaw; accumulation of saliva about the mouth; protrusion of the haw; difficulty in deglutition; slightly accelerated pulse; and costive bowels.

Treatment.—Were I to attempt to give a list of the different medicines that have been employed for ages back for the cure of this malady, I should completely tire you; suffice it to say, that for no other disease, glanders excepted, has the pharmacy been so thoroughly ransacked for the discovery of the long-wished for cure: yet notwithstanding the indefatigable search, and the new light that has dawned on veterinary science, it still remains unknown. For me to say that a specific means of cure will never be found is certainly assuming much, but I believe that this will be the case.

It is generally agreed among the members of the profession, that

the chief reliance is to be put on topical blood-letting, purgatives, narcotics and counter-irritants. Among the purgatives croton stands unrivalled, being both quick and potent in action. Among the narcotics opium certainly bears the palm; but camphor is spoken highly of by several practitioners. I told you in my preface that the measures to be adopted must be bold and active. If you employ any agents, this must be their character. You will, perhaps, be startled at my using the expression, *if you employ any agents*; but it is my conscientious opinion, and borne out by practical experience, that the less this disease is tampered with the better. I have seen horses affected with tetanus bled nearly to death—their spine blistered—sheep-skins applied over the loins—dose after dose of medicine administered—the actual cautery freely applied to the suspected sores—gruel horned down, that they may not perish from want—recourse had to the cold and warm bath—tepid water being injected into their veins—their tails taken off nearly to the root—setons inserted in various parts along the vertebræ—the nerve leading from the seat of injury divided; indeed, I might go on telling you of experiments *ad infinitum*: this, however, would be a waste of time.

What treatment, then, would I adopt if called to a case of tetanus? It should be simply this: I would first of all have the patient removed to the quietest loose box or shed in the place, and that being well littered down with short straw. I would then administer a brisk cathartic; and, in order to excite the action of the bowels as soon as possible, I would inject powerful enemata. If the breathing was at all disturbed, the patient should lose a few quarts of blood. This and nothing more should be done to him, except that bran-mashes or steeped oats should always be within his reach, and the place kept as dark as possible.

We are told by a very high authority that opium is the “sheet-anchor in this disease;” but were we, instead of “opium,” to insert “absolute quietness,” it would please me much better. It is here that many people err in the treatment of this disease. They never for a moment think that even the trifling circumstance of opening the door of his box raises his pulse several beats in a minute. Need I ask, how much more will a person do this by fighting with him and knocking him about, resolved to administer some medicine, let both his pulse and general excitement be as great as they will? Should the patient be in a country town or village, the novelty of the case—a horse with lock-jaw—will attract one person after another, in fact, the whole of the villagers must have a look at him; and some are not content with a look, but will endeavour to force his jaws open, just to see how firmly they are locked. Gentlemen, this must appear to some of

you a matter of no moment, but be assured, that the quieter the animal is kept the more chance there is of his recovery, and without it there is none.

If treating a traumatic case, and when practicable, apply poultices to the wound, and, instead of cauterizing with the hot iron, which greatly adds to the general excitement, apply the *potassa fusa*, which will be found to answer extremely well, no bad consequences following its application. I should have said, that little danger needs to be apprehended from the free use of cathartics, were it not that a case came under my observation in which, from the administration of a moderate dose of physic, enteritis followed.

Hydrocyanic acid is given in clysters at this Institution; and although I never saw it made use of except here, and that only in one instance, yet from the very favourable way in which it is spoken of by our teachers, some good may be expected from it.

There is yet another plan of treatment that I will mention before taking leave of this part of my subject, and that is the throwing of the animal into a kind of trance by means of the Woorara poison, as suggested by Professor Sewell. It certainly has two things to recommend it, viz. coming from so high an authority, and, as people now-a-days, are fond of any thing new, it will just suit them, for it is certainly novel. I should be more afraid of the horse going a step or two on the other side of the trance than to expect any good from it.

The terminations of tetanus are simply resolution and death. From three to four weeks generally elapse ere the muscles have returned to their usual tone and character. When it is fatal, the day of dissolution is very uncertain, the horse being sometimes cut off in a few hours, although, in the generality of cases, the patient survives to the third, fourth, or fifth day; or his tortured frame may linger on to the eighth or tenth day before he dies. The appearances after death in this disease are very unsatisfactory; and as I never had the opportunity of witnessing a post-mortem examination of a horse that died from tetanus, I will take the liberty of giving the account of others. The viscera of the abdomen are in general found to be inflamed, more particularly the stomach and intestines. The lungs are gorged with blood, and the pleura slightly injected. The meninges of the brain and spinal marrow partake largely of the inflammatory action, and especially the dorsal portion. The substance of the cord itself is found to be darker coloured than usual, and sometimes water is found in the lateral ventricles of the brain.

Thus then, Gentlemen, I have hastily run over my subject; and, although conscious of its numerous defects, I submit it to

you in the sincere hope and anxious desire to promote, in some degree, the object of our Association,—the good of those animals placed lower in the scale of creation than ourselves.

Mr. Wallis, although he had been but a short time in practice, had seen many cases of tetanus. In five or six he had been successful, and in others considerable impression had been made on the disease by the treatment he had adopted. His cases had chiefly arisen from external injuries. Whether or not the pulse was accelerated at the commencement of the attack, his first step was to bleed largely—he subtracted 8 or 10 quarts of blood. This was followed up by a strong dose of aloetic medicine—8 or 10 drachms. He never found either colic or enteritis produced by this treatment; but in the great majority of instances, the progress of the disease was immediately arrested.

The bowels having been opened, he commenced the exhibition of opium combined with aloes, and given in such doses that both should act freely. He then applied a blister along the course of the spine, because, in fatal cases, he had always found inflammation of the spinal marrow, and effusion within the sheath; and he thought it possible that an active blister early applied might put a stop to this.

If the first blister appeared to produce little action, it would be advisable to repeat it, and also to apply it over the wounded part, if the disease could with any probability be traced to an injury or wound. If the original injury was on the face, a seton should be inserted, armed with some blister ointment, care being taken that no portion of it got into the eyes.

If the case had been neglected in its early stages, bleeding would, perhaps, tend more rapidly to weaken the horse; and then opium and camphor should be administered, and every method adopted to support the strength of the patient.

Enemata should be frequently thrown up, not only with a view to support the strength of the animal, but also for the purpose of administering the necessary medicines. Some have recourse to a balling-iron for this purpose. This may do when the jaws are not perfectly closed; and the balling-iron may be constructed so thin as to admit the passage of the ball between the molar teeth and the tushes.

He had one very singular case, in which he thought for a long while that he should not have been successful. He bled and kept the bowels open, and the violence of the spasms was in some degree lessened, but the jaws were still closed. At the expiration of three weeks from the first access of the disease the animal attempted to lie down, and in doing this he fell and fractured the tibia. Counter-irritation ensued, and the former tetanic symptoms speedily disappeared. He had not given the common antispasmodics to any great extent, for they were almost powerless in a case like this.

Mr. Sibbald had experienced good effects from blisters and other counter-irritants.

Mr. Wardle had obtained the same, although he, like others, had been rarely called in until the case was gone too far. As to medicine, in this disease some say that they will give one thing, and some another; but the question is, can they administer the medicine at all. They had lately been told of the invention of an instrument that could be passed into the mouth in cases of tetanus. It was in the form of a syringe, and invented by Mr. Yare. Now such an instrument would, indeed, be valuable; but he doubted whether it could often be had recourse to. He acknowledged himself to be an advocate for the use of the hydrocyanic acid in cases of tetanus; but much caution was necessary in the employment of such a drug. He should

have more faith in the mercurial ointment. Medicines were comparatively easily administered to cattle, and he had seen them supported several days by the administration of gruel passed up the nostril by means of a tube.

This was a disease in which the strictest quietude was of great importance. The veterinary surgeon should have the key of the stable in his own pocket. In these cases there were far too many idlers intruding, to the great annoyance of the surgeon and the patient. The annoyance to the patient is, indeed, dreadful, and should not for a moment be suffered. He had observed the pulse to increase 15 in the minute by the hand being laid on the sufferer.

Mr. Sibbald expressed some surprise at the advocacy of the hydrocyanic acid by *Mr. Wardle*. Was it administered in enemata or by the mouth?

Mr. Wardle had injected it up the rectum, not having ventured to give it by the mouth. He commenced with a drachm, and had given as much as two drachms by means of the old bladder and pipe. Read's apparatus might be used, but he preferred in these cases the old instrument. It was more manageable for a small quantity of fluid, which was thrown up with little or no difficulty. Medical men have recourse to the hydrocyanic acid in various cases of spasm.

Mr. Greaves had seen rowels and setons introduced with considerable benefit by several respectable practitioners. It is a good principle to get as much counter-irritation as can be procured.

Mr. Wallis had never seen much good result from counter-irritation.

Mr. Sibbald said, that much would depend on the cause of the disease. In one case that had fallen under his notice it arose from over-exertion. Great exhaustion followed, and it was necessary to rouse the system by powerful stimulants. This being effected, the most extensive counter-irritation succeeded. Bleeding is principally useful as a precautionary measure, and then it is often of great advantage. Blisters, and the mustard embrocation, may divert the current into another course, and during that the nerves may recover their tone. It is from the principle of counter-irritation that the most decisive good can be expected in tetanus. The discharge accompanying the blister, however, is a very important circumstance; this relieving, to a considerable degree, the pressure on the nerves, and the accumulation of blood in the vessels.

A somewhat interesting but protracted conversation here ensued with regard to the effect of hydrocyanic acid, and the mode of administering it.

Mr. S. Fisher related a singular attempt to relieve tetanus. A horse was buried up to his head in manure. The poor animal presented a very ludicrous appearance. After a while an examination took place as to the effect that had been produced, when it was found that the tetanic spasms were very materially relieved, but the animal afterwards died of superpurgation.

Mr. Williams referred to the strangely torpid state of the bowels in tetanus. If a drop of hydrocyanic acid is introduced into the eye of a small animal, death almost instantaneously follows; yet, according to *Mr. Wardle*, a drachm, and even more, had been passed into the intestines of a tetanic horse without any prejudicial effect. He (*Mr. Williams*) had given two ounces of aloes to a tetanic horse, and after that, two drachms daily, for several days, without the slightest action following.

Mr. Greaves begged to ask the Secretary whether in tetanus strychnia was admissible? Its powerful influence over the nervous system is well known, and in this disease we have a degree of morbid excitation set up.

The Secretary would hesitate in giving a direct stimulant to the nerves in tetanus; but where loss of power existed, as in paralysis, this agent has been found extremely serviceable, by its powerful stimulating action on the spinal cord. And yet from the too often untractable nature of the malady under consideration we might, perhaps, be warranted in a trial even of this drug.

Now, although in tetanus we have augmented nervous energy, and as a consequence a contraction of all the voluntary muscles, yet it is a morbid excitation, as stated by Mr. Greaves; and by giving such quantities of strychnia as will produce a decided influence upon the motor division of the spinal marrow we may possibly set up a new action, and thus tend to the restoration of health; on the homœopathic principle, "*similia similibus curentur*."

The Wourali poison had been successfully employed in tetanus by Mr. Sewell, and the cases had been made public in the published proceedings of the Association.

Now this compound, he was informed by Dr. Schomburck, is made by the Indians from the bark obtained from a species of strychnos; and therefore it is fair to infer that the active principle is the same in both, namely, strychnia.

In poisoning by the Wourali, life seems to be stolen insensibly away; a few slight convulsive movements of the muscles—of the face particularly—alone marking its action! in other respects the animal appears to be in a trance: the eye is fixed, the visible mucous membranes are blanched, the pulse is feeble, it then becomes irregular, and at length ceases altogether: it seems to say, "Shall I go on?" and the answer, after a long delay is, "No!"

And yet, from what he had had an opportunity of seeing since he had been at the College, he preferred the milder system of treatment, conjoined with quietude. The "key-in-the-pocket" system of Mr. Wardle he highly approved of. More cases had been successfully treated here on that plan than on any other. The slightest disturbance often causes a great deal of mischief, and undoes much good that has been effected.

Mr. Williams asked whether, in tetanus resulting from a prick in the foot, a division of the nerve had been attempted, and if so, what was the result?

Mr. Williamson was not aware that an operation of this kind had been actually performed, but he understood that it had been recommended. The objection would be, the danger of casting a tetanic horse, unless the operation could be performed standing.

Mr. Wallis suggested whether he might not be blinded and slung, and thus much of the danger obviated.

Mr. Wardle said, that in 1831 a mare was brought to him excessively lame. It proceeded from a wound in the foot. There was a little inclination to locked-jaw—the muscles of the jaw being somewhat rigid, and the mouth partially closed. The wound was dressed, and she was physicked; but she became a great deal worse. She was then cast, and the nerve of the foot divided, but no portion of it was removed. She got well, and is now at work.

Mr. Greaves.—How is it to be accounted for, that more than a week or a fortnight after a wound has healed tetanic symptoms shew themselves? He had seen it so, and it had been—but altogether without cause he thought—attributed to the carelessness of the surgeon.

Mr. Pratt observed, that there were few circumstances so much misunderstood in the treatment of tetanus as bleeding. It was good for nothing unless it was carried to the fullest extent. It should, if possible, be pushed so as to cause a relaxation of the muscles of the jaw. Numerous were the cases in which the disease had then altogether disappeared, and it should never be forgotten by the surgeon.

Mr. Litt could have wished that there had been more time to enter into the consideration of *trismus*, a spasmodic affection of the muscles of the lower jaw, the disease scarcely extending farther. There is, perhaps, the same difficulty in producing purgation here, and although *trismus* sometimes degenerates into tetanus; yet there is more hope, or rather a probability of subduing it than when the muscles of the frame generally are affected. The croton oil is the best medicine in this case to procure speedy and active purging; and on that being early produced the character and termination of the disease will depend. It should also never be forgotten, that, after tetanus is once established, bleeding will be injurious rather than beneficial.

MAY 11, 1841.

The PRESIDENT in the Chair.

MR. BARTH laid upon the table two specimens of diseased knee-joint, beautifully shewing the effects produced upon the osseous tissue by the vapours given off from copper works.

The following communications were read:—

From Mr. GREAVES, Student.

May 11, 1841.

Dear Sir,—As a Essay on Tetanus, by Mr. Williamson, was introduced for the consideration of the members of this Association on the last night of meeting, perhaps a few more remarks upon the same subject may not be considered irrelevant, since he has not included a mode of treatment which I advocate, and which has been found extremely successful in practice. I certainly go a long way with him in his description of the disease; but what I have gained from practical experience compels me to differ from him, in a degree at least, on a point of treatment. I agree with him that absolute quietness and cathartic medicines are essentially requisite; but I would recommend the combination of some medicament that will act as an anodyne—also counter-irritation, and bleeding at the commencement of the attack. I am aware that I am at variance with some very high authorities here; yet I cannot sacrifice that treatment at the shrine of formality which the evidences of my senses tells me is most successful. I also consider that this disease may be caused by wounds inflicted weeks, nay, even months, prior to tetanic symptoms making their appearance, although the wounds themselves may have been trifling, healed readily, and were entirely cicatrized. Indeed, I think that many of the cases set down as idiopathic may, with careful inquiry, be traced satisfactorily to this cause.

I will lay before your notice a case which particularly attracted my attention in the year 1838. The patient was a mare, five years

old, the property of Wm. Walkden, Esq. of Carrington Hall, Cheshire. She was in good working condition, and had an excellent constitution. On the 25th of July she received a wound in her side, opposite to the cartilages of the false ribs, in the muscular portion of the obliquus externus abdominis muscle, but which was not a deep one. She was bled and physicked, and other ordinary treatment was had recourse to. The wound readily healed, and all tenderness and enlargement entirely subsided. She worked regularly until the 18th of August, when she was attacked with symptoms of tetanus after a day's journey, although this was more than three weeks after the wound was inflicted. She was bled copiously immediately on her being admitted into our infirmary; a powerful cathartic was administered; enemata were thrown up, and sheep-skin applied to the loins. Her jaws became closely approximated, but the disease did not make the rapid progress or run its course with that violence which I feel assured it would have done had she not been freely bled at the onset. She then had the potassio-tartrate of antimony administered daily. As soon as the cathartic began to act the intensity of the disease gradually subsided, and she left our infirmary on the 26th; but there still remained a stiffness and a rigidity of the muscles. On the 9th of September she experienced a return of the disease, the symptoms assuming a dangerous character. Mr. Greaves being from home, and the mare being a very valuable one and a great favourite, I requested Mr. Hollingworth, V.S., to see her, who kindly did so, and pointed out a very judicious, and which proved afterwards to be a very beneficial, course of procedure. He recommended a mixture of mercurial and blistering ointment to be immediately applied to the lumbar portion of the spine, and the irritation was to be kept up by its repeated application for several days; also a rowel in the inside of each thigh, and one in the chest, and the exhibition of laxatives, which were afterwards changed to the potassio-tartrate of antimony, given twice a-day in a handful of mash. It is true that this treatment did not directly produce very marked effects; but I consider that it had much to do with the recovery of the animal. The muscles of mastication continued rigid, and the jaws partially closed. On the 14th Mr. Greaves altered the medicine to *oleum lini et oleum terebinthinæ*. She had by this time wasted away to a mere skeleton; in fact, she was the most miserable and truly pitiable-looking object imaginable. Her neck was stiff, her eyes sunken in their orbits, the cartilago-nictitans protruded, her skin adherent to her ribs, every muscle wasted and extremely contracted, and her motions were what may be easily imagined in this frightful and deplorable state. The urgency of these symp-

toms gradually disappeared after the exhibition of the oleum terebinthinæ, which was given in ʒiij doses daily, combined with oleum lini, until the 13th of October, when she was discharged perfectly cured. Her skin soon returned to its wonted appearance, the coat became sleek, her condition rapidly improved, and her general health has continued good ever since. The owner states that she has stood her work, and he thinks she has even a better constitution than she had before.

I have seen many cases in which the turpentine and solution of aloes have been given in the earliest stage of the disease with marked benefit; and I am compelled to speak of it in terms of the highest praise. I am informed by Mr. Johnson, V.S. of Dublin, that the only medicine which approaches to a specific in tetanus is the oil of turpentine, given in doses of a pint, and combined with a solution of aloes, exhibited at the commencement, and keeping up the action of the bowels subsequently by repeated small doses of aloes.

Believe me, your's truly.

From Mr. R. BOWLES, Blanavon.

April 23d, 1841.

My dear Sir,—I have sent you a morbid specimen by this day's coach, and I hope you will receive it safe. It is an ossified aneurism of the posterior aorta, a little anterior to the first lumbar vertebra, taken from a mare that died of a rupture of the spleen, of which, I believe, not many cases are on record.

She was a brown mare, about 11 years old, of the nag kind, and 14 hands high. I bought her about four years since for the Blanavon Company. She was not by any means a fast mare; but if ever there was a long journey to be performed, it was "Take the old bay mare!" I have ridden her 60 or 70 miles a-day many times; any distance, in fact, did not appear to be too great for her. A canter was her usual pace, and she had a very peculiar walk. When I say *peculiar*, I mean a singular one to look at, and an uneasy one for the rider. She carried her hind legs nearly straight, and was low on the withers, and thick and high in the back, about the spot where the ossification is seen to exist.

About two years since I put her to work under ground, to draw coal, at which place, I believe, she was injured, for she took such a dislike to the situation that after a short time we could not get her to go in again. Her condition was always very good until that time, when she lost flesh very fast. I did not pay

much attention to this, as I considered it a new job, and, perhaps, she worked harder than usual. After her death I made inquiry as to whether she was ever injured when working underground? The answer I received was, that she often used to kick, and by doing so hit her back against the top of the level; but there not being any wound at the time, they would not name the circumstance to me, which I am sorry to say is too often the case in iron works.

I do not remember having given her medicine under any circumstance whatever, until about three weeks ago, just before she died.

The following are the symptoms that shewed themselves, as near as I can describe them:—The saddle was put on for me to go to Abergavenny. I suppose that it had been on about twenty minutes, when one of the men came and told me the old mare was “griped.” I directly went, and found she was lying down on her right side. I got her up, when she directly fell on the opposite side. I allowed her to remain in this state for about two minutes: she did not struggle, her eyes were closed, her mouth cold, and she involuntarily voided her urine and fæces as she lay, grinding her teeth so that it might be heard at some distance. Her pulse was imperceptible, and she trembled violently. In endeavouring again to raise her, she fell two or three times upon her head and knees; but, after some difficulty, we kept her on her legs for about five minutes. Fearing at first some affection of the brain, either sympathetic or otherwise, I attempted to bleed her, but could not get above half a pint of blood from the jugular vein. I then opened the temporal artery, but to no purpose. What little blood did come away ran down the cheek as if flowing from a vein. It was now evident that internal hæmorrhage was taking place. I had plenty of straw put under her, when all of a sudden she jumped on all four legs off the ground, and fell upon her head.

I gave her some sol. aloes in warm gruel, but her breathing became shorter and shorter—she shook her legs, and died groaning most pitifully. From the time she was taken until she died was about an hour and a quarter.

I had her opened immediately, and as soon as the knife went through the peritoneal lining of the abdomen, the blood gushed out as if from an artery. I examined every bloodvessel of the abdomen, but could not find a rupture of any of them; the intestines appeared to be healthy, and the glands, &c. were of their usual size: but on examining the spleen, I found a rupture of about two inches in length, whence the blood had escaped. The diaphragm was as if stretched, and had a great many black spots,

resembling ecchymoses, upon it ; the heart and lungs were apparently normal ; the stomach and intestines were not distended, and she was in very good condition. The diseased aorta I leave to speak for itself. It will be seen that it is connected with an anchylosed state of the spine about the lumbar region, and, probably, the ossific matter that has been thrown into the parietes of the vessel is but an extension of the ossific inflammation.

I also embrace the present opportunity to send you two other specimens : one a fracture of the larger pastern bone, and the other a calculus ; although these may not interest you as much as the first described.

I believe the horse to have worked with the fracture ; but I cannot speak positively upon that subject. The polished appearance of the edges of the fracture induces me to think this.

The calculus I took from the intestines of a horse about two years since. It is rather a common occurrence with us. I often find in my post-mortem examinations a great quantity of small coal and stones in the intestines of horses that work under ground. There were about 10 lbs. of that kind of material in the colon and cæcum of the horse in which this calculus was found. It is, as you will perceive, what is incorrectly designated a dung-ball.

Believe me, respectfully your's, &c.

From Mr. D. M'TAGGART, Halifax.

May 4th, 1841.

My dear Sir,—THE VETERINARIAN, which I have just received of this month, reminds me of a very great omission of which I have been guilty, in not acknowledging the compliment paid me by the members of the Association in electing me one of their Corresponding Members. Will you have the goodness to apologize for me, and present my best thanks for this mark of their respect.

I have the interest and respectability of the profession much at heart, and it would be to me a great happiness could I in any way usefully contribute to it. If THE VETERINARIAN was strictly confined to the members of the profession, I could have no hesitation nor objection in unveiling the little I possess of practical veterinary knowledge, nor would time be wanting to this end. But as it is circulated to all and sundries, I have an objection to the principle of educating the individuals upon whom the profession depend for support—the owners of horses and cattle in every district. I need not hint to you the disposition most people have to quacking ; and they may well do so

when they have the very marrow of veterinary knowledge to refer to. As regards the lower animals with which our profession have to do, there appears not to be, on the part of the owners, any moral principle or responsibility to deter them from exercising their own knowledge; and I am only afraid that if veterinary works are indiscriminately circulated to the public, in the course of time the avocation of the veterinary surgeon will be deemed unworthy his attention. How much this may affect the College, it is not for me to say. The members of the College are now numerous. Could the Editor of *THE VETERINARIAN* be as well remunerated as at present, by them, few, I think, would object to an additional price, in order to have it entirely confined to the profession.

I trust you, Sir, and the members of the Veterinary Medical Association, will not consider these remarks impertinent. Allow me to say, I hold dear the appointment so kindly given; and when an opportunity occurs in which I can be of service to the members of the profession, I will respond with hearty good will.

Meantime, I am, my dear Sir, your's very truly,

D. M'TAGGART.

To Mr. Morton.

Mr. Hollingworth, of Manchester, presented a pair of Improved Refrigerators for the Feet of the Horse; and Mr. Dawber, of Liverpool, a copy of his Essay on Moschotocic Adynamic Fever in Cows.

The following Thesis, by Mr. T. LOADER, was then read:—

ON THE STRUCTURE AND DISEASES OF THE KNEE-JOINT.

The want of spirit which has lately been evinced in the meetings of this Society has induced me to attempt the contribution of something, however trifling, towards its regeneration; and, that my wishes may be the better fulfilled, I have selected a subject, the theoretical division of which is the most beautiful, and, the practical one, perhaps, one of the most important with which we are acquainted. Previous, however, to commencing my subject, I would call your attention to the fact, that I lay but few claims to practical information; but humbly trust that my deficiencies on this score may be somewhat compensated for by correct physiological knowledge: you must, therefore, deal leniently with me.

To the mere cursory observer, the structure of the fore extremi-

ties of the horse, or, indeed, of any other animal, does not seem to present much worthy of remark; but to him who looks upon these parts with the eye of a philosopher, there is no division of the animal frame more curious or more interesting. It is not, however, simply to the anatomical details of the subject that I here allude, but to their comparative physiology, and to the thousand evidences of design that may be drawn from it.

How beautifully is this exemplified in Sir Charles Bell's inimitable treatise on "the Human Hand!"

The carpus, or knee of the horse, is that joint which is analogous to the wrist of man; and although there is some slight similarity between the constituents and structure of these parts, they serve to perform functions which are very widely different. In the horse, as in all monodactylous animals, the bones of the carpus serve merely for the attachment of tendons, and—if comparisons may be allowed where all is perfect—for the more important function of warding off that concussion which is productive of so much evil to the animal's health.

It may be said to be composed, in our noble patient, of twelve bones, although the true carpal bones are only eight in number—the first tier articulating with the radius above, and the second with the three metacarpals below. It will not be necessary for me to describe the relative shapes and situations of these bony cushions. You are all acquainted with them, and I wish to avoid being considered tedious and dull. There are, however, one or two facts which ought not to escape observation, and I must therefore take a general, although hasty, view of them.

The first tier, or row of bones of the knee, consists of the ossa scaphoideum, lunare, and cuneiforme, and the second of the trapezoideum magnum and unciforme; and they are piled on each other after the manner in which the bricklayer arranges his bricks in the building of a wall; that is, each line of division is over the centre of a third—a provision by which great strength is secured, without the slightest loss of elasticity. It must not be forgotten here, that the innermost bone of the lower row (the trapezoid) articulates below with the inner metacarpal—an anatomical fact with deductions from which we are all acquainted, as upon it is dependent one of the most common diseases to which the horse is liable—need I say that I allude to splent?

The other two bones that enter into the composition of the knee are the trapezium and os pisiforme—the former a flat, irregularly quadrangular piece of bone, articulating with the posterior surfaces of the cuneiforme, and slightly with the radius, and projecting backwards so as to afford a considerable attachment; while, as the annular ligaments are sent off from it, it affords a

protection to the bloodvessels and nerves which pass over the back part of the knee during the flexions of the joint. The small or pisiforme bone, which, however, is not always found, is situated behind the trapezoid, but its uses are not apparent.

The bones of the carpus are firmly connected with each other, with the radius above, and with the metacarpals below, by strong ligamentous bands, of which there are no less than three different orders—the inter-osseous, the lateral, and the annular; and so powerful is this connexion, that a luxation of the joint is quite unknown. The motions of the carpus, I need scarcely say, are confined to flexion and extension, and the horse possesses no power of supination in his extremities.

The tendons of all the extensors of the knee, pasterns, and foot, pass over the front of the joint; while the flexor-metacarpi internus, and those of the pasterns and foot, run over its posterior surface. They are bound down in their course by different provisions, the most remarkable being that of their passing under the annular ligaments, where they are also lubricated by several bursæ mucosæ. These, however, have no communication with the synovial capsules of the joint, of which Mr. Percivall enumerates no less than four.

The knee derives its sensation from several sources, as branches from all the three main nerves of the fore leg may be traced to it. The ulnar, and a communicating branch from the radial, pass over its posterior surface.

The arteries of this vicinity are the metacarpal arteries, formed by a bifurcation of the radial immediately above the back of the joint. The knee of the horse should always be strong and broad, having a projecting trapezium; and care should be taken not to select an animal with slender metacarpals, nor *tied down* under the knee, as the horsemen express it. These remarks, however, are to be received with modification, according to the breed of the animal, the sort of work required from him, and other circumstances.

For speed, I need scarcely say that the scapula should be sloping, the olecranon projecting, and the radius long, as all these arrangements give immense mechanical advantages to the animal machine.

But, to the diseases:—I have already said, that I lay but few claims to practical information; and, therefore, it is with some degree of fear that I enter on this division of my thesis. Of course, I shall have nothing new to offer, and therefore may become tiresome in the recapitulation of what has been so frequently said before; but such is not the position held by the majority of the

gentlemen before me. Let me trust, then, that they will furnish us with the benefit of their experience. For my own part, I shall be as brief as possible.

The diseases of the knee I shall class, as Mr. Litt has done those of the hock, into three orders; namely, *bursal* and *synovial*, *sprains*, and *exostoses*.

The *bursal* affections to which the vicinity of the knee-joint is liable are analagous to windgalls—distention of the synovial sacs. They are, for the most part, a consequence of sprains or over-exertion, and I have seen them occasionally of great magnitude. The treatment most likely to effect a cure—for they are extremely difficult of eradication—is external pressure and cold lotions, when recent, and blisters, setons or firing, when they have become chronic. The inflammation and constitutional irritation which is often set up, consequent upon an exposure of the internal membrane of these sacs, should make us extremely cautious about opening them; indeed, I would in no instance recommend it.

It may be curious, if not practically useful, to learn how our grandfathers were wont to treat windgalls, and therefore I shall extract the mode of cure spoken of by Gibson: he says, “The usual method of cure is by opening them with a fleam, and applying to the orifice a little plaster of rosin, pitch, mastick, oil of bays, with the white of an egg; and there are some who add verdigrease and turpentine, which is not amiss.” How different is this from the enlightened treatment of the present day!

Open Joint is here a disease of very frequent occurrence, as it is also one of the most serious nature. It is the result commonly of falls, by which the cavity of the joint is laid open and the synovia is allowed to escape from the surface of the bones. The constitutional irritation often runs so high as to destroy the animal, if not forestalled by his humane owner. The modes of treatment recommended in this disease by various authors are widely different indeed; they may all, however, be reduced to one or two principles. Having cleaned the wound properly, our attention is next to be turned to the best means of stopping the discharge of synovia, as, were this effected, we have nothing farther to fear. Rest to the joint, either by slinging the animal, or some other mechanical contrivance, and the combatting of general and local irritation by antiphlogistic means, are also important desiderata.

Sprains of the knee are not very common among our patients, although they are occasionally met with. They are indicated by pain, heat, and tumefaction, and generally may be traced to a

very obvious cause. Venesection from the brachial vein, cold lotions, and an occasional dose of physic, are infallible in such cases.

The bones of the knee are sometimes formed into one ossific mass, in consequence of very bad open joint; and the same effect Mr. Barth has shewn to be a consequence of that peculiar affection termed the Copper-smoke Disease. In such cases, I need scarcely add that all treatment is useless.

I have now arrived at the conclusion of my subject; and although I am desirous of saying something in excuse of the imperfection of my remarks, yet I feel that it would be useless; and therefore, such as the paper is, I submit it to you. Trusting that it may be productive of benefit in the eliciting of something of practical utility,

I have the honour to be, &c.

Mr. Greaves asked, why are the small bones of the knee not so liable to concussion and disease as those of the hock?

Mr. Loader.—There is more extensive motion between the bones of the knee, and the motion is greatest between the first and second rows.

Mr. Greaves.—In the lower row of bones, the trapezoides and the small metacarpal bones, why is there not inflammation and ossification instead of bone in the seat of splent?

Mr. Loader.—The trapezoides rest on the inner metacarpal.

Mr. Greaves—There is a great deal of weight thrown on the inner side: one would think that inflammation and union of these bones might take place. Why is it not so with splent?

Mr. Loader.—Because no synovia has escaped.

Mr. Wills.—Should the cautery be applied in case of open joint?

Mr. Sibbald.—Yes; where the orifice is not very large, and there is no great degree of inflammation. What is the action of the actual cautery? In cases like this it acts as a bandage. When applied across the joint, it acts as a temporary bandage, and a deposit of granulations is soon formed over the surface. A cure might possibly be effected by opening the bursæ. Has any one put this to the test?

Mr. Wills had seen the actual cautery applied in several cases with advantage, when there was no very great degree of inflammation. He had succeeded in cases of extensive laceration of the knee, by means of powdered alum and pipe-clay, made into a paste. The flow of synovia was staid in the course of four or five days—the dressing being applied as securely as possible about the part, and kept moist with water.

The President considered that a question put to the author of the Essay by Mr. Sibbald was a very important one, namely, as to the propriety of opening *bursal sacs* situated in the neighbourhood of joints. As the author had to a certain degree decried the mode of practice pursued by others, without assigning his reasons, he would beg leave to state his own experience.

He felt assured that there was some better mode of treating bursal enlargements than simple cold applications and rest, by means of which the synovia might become absorbed, and the dis-

tention relieved for a time only. Other modes have been adopted by various practitioners, such as firing, blistering, &c. ; but as all these methods had often failed, he had had recourse to opening these sacs by a small puncture.

Before we lay open this sac, we should recollect that the lining membrane is highly vascular, but the vessels which ramify over it are exceedingly minute. These membranes being exposed, are very liable to inflammation, and will not readily take on the adhesive process. A tendency to the secretion of synovia is produced, and thus an open running wound is established, which may last for weeks, or even months, discharging often nothing but synovia, and which is evacuated through a minute orifice : in a majority of cases, however, there are portions of floating coagula as well as synovial matter passing through the orifice. The best mode of treatment consists in evacuating these cavities, and, by gradual pressure, bringing together the sides of the sac, and thus causing them to adhere, if it can be accomplished. Although he had hitherto adopted this plan, he was inclined to think that a freer incision might be made, so as at once to empty them of their contents, and thus produce a common wound. He was of opinion that a bold mode of practice was often the best. We promote suppuration and granulation, and ultimately get rid of the enlargements.

One of the most extensive practitioners in the metropolis, Mr. Mavor, has been in the habit of opening these bursal enlargements for some time past, and with the greatest success. The inflammation that follows a free opening has been of such a kind as to produce a less degree of pain than a mere puncture, particularly in the vicinity of the lower end of the tibia and astragalus.

He did not much fear open knee joints ; although cases had occurred in his practice, in which he had ordered the horse to be destroyed, rather than subject him to the certain torture and probable result of a serious lesion : but, for the most part, there is not that difficulty in treating open joints in the knee as there is in the hock and other extensive articulatory surfaces.

As to bursal enlargements about the pasterns, commonly designated windgalls, they may with impunity be opened ; yet the animal should be first prepared by bleeding and physic, lest there should be some obscure and dangerous tendency to inflammatory action. In general, however, suppuration will take place, healthy granulations will form, and the joint will become sound and unimpaired.

We are often in the habit, at this Institution, of introducing a seton under the integument covering the sac. Next to the opening of the sac, this is decidedly the best mode of treatment.

Mr. Litt.—In the President's experiments on these and similar cases, did he ever open the enlargements with the heated iron? Some writer gives an account of this kind.

The President thought it a most excellent plan, and one that would be attended with success. He was lately conversing with a practitioner, who told him that, firing a horse over a thoroughpin, and intending only to penetrate through the integument, he passed his iron into the bursa. No mischief, however, resulted.

Mr. Litt asked Mr. Mavor what were the means which he usually adopted, and what was the result? When the parts were not disposed to take on the suppurative process, he (Mr. Mavor) generally had recourse to a solution of nitre.

MAY 18, 1841.

Mr. FRYER in the Chair.

A specimen of injury to the leg of a horse was laid on the table. The following letter from Mr. J. Tombs, of Pershore, was then read:—

I have sent per coach the leg of a horse, which I hope Mr. Barth will have the kindness to dissect, and explain to the pupils of the Association the nature and cause of the morbid appearances of the same, as time will not permit me to enter into a lengthened description of it.

The history of the case is this:—The horse belonged to a butcher; and, as is generally the custom of those unmerciful men, was ridden and driven tremendously hard; the consequence of which was, that great inflammation was set up in the foot, &c., for which local blood-lettings and repeated doses of laxative medicine were had recourse to, but did not arrest the progress of the inflammation. The actual cautery, and even caustics, were likewise unavailing.

The horse then being extremely lame, which incapacitated him from work, as a last resource I excised a portion of the metacarpal nerves (not very easily, as you may imagine, in a thick-skinned leg like this): he became immediately upright, and worked very well for a month. He was then put to unusually hard labour, which caused, as I suppose, a rupture of the suspensory ligament. The horse walked on his fetlock and heel. Dissection, however, will alone prove the correctness of my view.

The orifice at the heel, communicating with the interior of the foot, was occasioned by repeated bruises, and the swelling of the leg by the inflammation caused by the lesion above alluded to. The ossification of the coronary ligament and lateral cartilages,

&c., existed prior to the operation of neurotomy being performed.

A month ago I performed a similar operation on a mare, that had been lame with navicular disease for three years: the lameness ceased immediately. A fortnight ago she was covered.

I would observe that, previous to being unnerved, she was in too much pain to take the horse. This was an exceedingly heavy horse, and the sustaining of his ponderous weight caused her suspensory ligament to give way, and she now walks on her fetlock: nevertheless I think she will breed. These two cases of the nerve operation being unsuccessful, on account of proper rest being niggardily refused by the owner, I am induced to communicate to the Association, trusting the young aspirants for fame will benefit thereby.

I am, dear Sir, your's sincerely.

Mr. Barth, who, in compliance with the request of *Mr. Tombs*, had dissected the parts, gave the following interesting account of them:—

The high state of disease in which the parts were rendered it not a little difficult for him to give an accurate description of them. It would be seen that immediately above the heel was an extensive ulcerated opening. On introducing his probe, it struck him that there was fracture of one of the bones, and not merely the superficial ulceration described by *Mr. Tombs*, which was, in fact, extending quite over that part of the leg. He then cut into this sloughing ulcer, and found a fracture of the *os coronæ*. The extent of this wound was very great. The ligaments of the navicular bone had sloughed away, and the bone itself was removed by the forceps.

The fractured portions of the *os coronæ* are now plainly to be seen, and the horrible state of disease is evident enough. The surface of the *os pedis* is evidently corroded.

This mischief must have existed a considerable time.

The cause of his walking on his fetlock is now sufficiently plain. The short superficial ligament, from the sessamoid to the *os coronæ*, is sloughing away. The posterior surface is softened; even the periosteum of the bone is lost. The bone presents nothing more than its usual appearance when divided or excised. There is a thickening of the parts around, and a large bulbous projection.

Mr. Barth next proceeded to examine the fetlock joint. It was perfectly healthy. He proceeded to the navicular joint. Here was the true seat of the lamenesses that used to be per-

ceived, although the cause of that lameness is somewhat difficult to assign. He had once a case of nearly the same kind. It got to all appearance well, and the animal was sound for a considerable period; but he subsequently became lame again, for the os coronæ was shattered to pieces. The operation of neurotomy was performed three inches above the fetlock, and sensation ceased about these parts; for the animal occasionally struck his foot with his whole force on the ground, and so powerfully as to fracture the bones, yet apparently without suffering any pain. The injury must have been most severe, and of long continuance, in order to account for all this sloughing. Both the flexor tendons were detached, and the navicular bone was entirely loose in its cavity. The operation was performed rather high up—three inches above the fetlock on both sides.

The Secretary, previous to reading the Essay which lay before him, begged to state that, being pressed for time by the approach of the vacation, only part of it would be read; namely, that which had reference to the *anatomy* and *physiology* of the liver.

The following Essay, by Mr. WILLIAM WILKS, was then read.

ON THE LIVER OF THE HORSE, AND ITS DISEASES.

To the President and Members of the Veterinary Medical Association.

Gentlemen,—The following imperfect remarks are upon one of the most important organs of the animal frame, and I much fear I shall not be able to do full justice to my subject; but should the Members of the Association obtain the least information from my attempt, coupled with the discussion that I hope will follow, I shall rest satisfied that my pen has not been employed in vain.

I trust none will think me presumptuous in introducing the anatomy, physiology, and pathology of the liver; for I confess I do not present this thesis with an impression that I can offer any thing new—that must be left to abler heads than mine; but more for the purpose of refreshing your memories, and, by so doing, aiding in the advancement of our art.

THE LIVER is one of the largest secreting glands in the body, and differs from all others in separating the bile, principally from venous blood.

Situation.—It is situated in the anterior part of the abdominal cavity; the greater portion in the right hypochondriac region, and the lesser in that on the left side. It is, in figure, convex

and smooth anteriorly where it lies in contact with the diaphragm, and concave and smooth posteriorly in contact with the stomach and colon. It is thickest in the middle, becoming attenuated around its circumferent edges, and is divided in various places by fissures or clefts, which constitute what are termed its lobes: these are three in number, a right, a left, and a middle lobe.

The right lobe is the largest, and is entirely situated in the right hypochondriac region. Along its concave part, and proceeding from its obtuse border, is a triangular portion, *the lobulus caudatus*: it is included within the folds of the right lateral ligament.

The left lobe, not so large as the right, is situated in the left hypochondriac region. The middle lobe is placed between the right and left lobes, and in the epigastric region. The outer edge of this lobe is divided by numerous fissures, from which it has received the term of *lobulus scissatus*.

The several fissures which exist in the lobes of the liver are more for the purpose of adapting that viscus to the other viscera of the abdomen, than for any peculiar functional arrangement.

Attachment.—The liver is not only held in its situation by means of its nerves and bloodvessels, but it has also ligaments: these ligaments are five in number, namely, a right and a left lateral, a coronary, a suspensory, and the ligamentum rotundum, or round ligament.

With one exception, these ligaments are all reflexions of peritoneum, the exception being the ligamentum rotundum: this is the remains of the umbilical vein of the fœtus, which, after birth, becomes impervious.

The right lateral ligament attaches the right lobe of the liver to the diaphragm, the right kidney, and the pancreas. The left lateral attaches the left lobe to the diaphragm, the left kidney, and the pancreas.

The coronary ligament surrounds the posterior vena cava, and attaches the liver to the tendinous portion of the diaphragm.

The suspensory ligament is situated below the coronary ligament, and also attaches the liver to the diaphragm and the ensiform cartilage of the sternum. Contained within the folds of this ligament is the ligamentum rotundum, before spoken of.

Structure.—The liver is outwardly covered by peritoneum; and is made up of the ramifications of the hepatic artery, the hepatic veins, the vena portarum, nerves, absorbents, and the pori biliari, these being united together by cellular membrane: this has received the name of Glisson's capsule, or *cellulosa hepatis*, which is considered as a distinct tunic to the liver. This tunic is

described as a cellulo-vascular membrane, in which the vessels ramify to an extreme degree of minuteness. It forms sheaths for the larger vessels, and a web for the smaller vessels to ramify in. It enters into the whole structure of the organ, and finally enters the lobules (the acini of some anatomists) with the blood-vessels. Thus it will be perceived that Glisson's capsule enters into the minutest structure of the liver: and, from its extent, it has been divided into three portions—a vaginal, which surrounds the vessels; a lobular, which forms the capsule to the lobuli; and an interlobular, entering into the substance of the lobuli.

The principal conduit of the blood to the liver, for the function of secretion, is the vena portarum, a large vein, formed by the union of the veins of the chylopoietic viscera, and those veins returning the blood from the stomach, the spleen, and the intestines, &c.

The vena portarum is found running in contact with the spine, on the right side; in its course it passes through the substance of the pancreas, on the right of the hepatic artery and duct, to the concave part of the liver, opposite the middle of the right lobe. Previous to entering the liver, it bifurcates. The right division pierces the right lobe; the other division continues its course, in company with the hepatic artery, to the middle and left lobes. After it has entered the substance, it gives off innumerable branches, which ramify throughout the substance of the liver in extreme minuteness, and terminate in capillaries, that, from their arrangement, have been termed the penicilli. At the termination of the capillaries are numerous granular bodies, the acini; by others they are designated lobules, which, in my humble opinion, is a more appropriate term. These lobules are of a similar structure throughout, one part not being more vascular than another. They receive outwardly a covering of Glisson's capsule.

The liver, for its nourishment, is supplied with arterial blood by the hepatic artery, a branch of the cœliac. It ramifies chiefly over the vessels, &c. This artery is very small in comparison to the size of the gland.

The vessels of the liver possess outwardly a covering of Glisson's capsule, internally a serous membrane, and centrally a muscular tunic.

The bile is secreted in the lobules, and conveyed by the pori biliari into the hepatic duct.

The ductus choledochus, or hepatic duct, is a muscular tube, lined with a serous membrane. It is peculiar for its whiteness, is about four inches in length, and may be seen running along the upper and inner edge of the right lobe, previous to its passage

from the portal of the liver. It is accompanied by the hepatic artery on the right side, and below the posterior vena cava it continues its course to the duodenum, piercing the intestine about four inches from the pyloric orifice of the stomach. At its termination within the duodenum it is guarded by a valve, for the purpose of preventing the intrusion of any foreign matters.

Having described those vessels that supply the liver with blood, there remains to be described those which return the superfluous blood from that organ, namely, the hepatic veins. They are very numerous, and empty themselves into the posterior vena cava by innumerable pin-like orifices, some large, and others small. Arising from the distance which the veins travel, previous to piercing the posterior vena cava, this vessel passes through the substance of the liver to the diaphragm.

The nerves of the liver are branches from the pneumogastric and sympathetic.

The general inference from all these statements is, that the liver, as to its structure, agrees with other secreting glands, having ducts ramifying within it which form a system apart from the other vessels; its greatest peculiarity being, as before stated, the separation of its secretion from venous blood principally, and only from a small quantity of arterial blood. That bile is secreted from arterial blood, is proved by injecting the vessels; the injection will be found to have entered the lobules or acini of the liver. A better proof is, by passing a ligature around the vena porta, when the secretion of bile is found to be still carried on, but not in such quantity as before.

The bile is a fluid of a green colour, having a bitter taste and a nauseous smell, and possessing alkaline properties.

THE USE OF THE BILE.—As a secretion, it performs an important part in the function of digestion. By some, however, it is regarded as an excrementitious fluid, like the urine, and one which, if retained, would prove noxious to the animal economy: if it were so, I think it would have been conveyed by some conduit out of the system, and not carried into the first part of the intestines, the duodenum.

It has also been stated by some to act as a stimulus to the alimentary canal, increasing its peristaltic motion. In the adult, this probably may be the case; but during foetal life the process of digestion is not performed, yet the liver during that period is secreting a much larger quantity of bile in comparison with the liver of the adult. The whole of the blood passes through the liver in its course to the heart in the foetus, and the bile is found in an inspissated state in the large intestines, where it would prove a source of irritation, if it were a stimulus to them.

The liver, as a secreting organ, is said to be analogous to the lungs in this respect, that the lungs expel carbonaceous matter in a gaseous state, and the liver a similar matter in a more solid state. My opinion is, that the bile causes a quicker separation of the chyle from the chymous mass, rendering it at the same time more fluid, in order that its absorption should be quick, and the function of digestion performed with little waste to the general system.

The liver is the grand regulator of the deposit of fat in the body, the secretion of bile coinciding in many respects with the deposition of adipose matter; and as the bile is essentially requisite to healthy digestion, and has a direct influence on nutrition, so also does the fat indirectly contribute to the same end, being an accumulation of pure nutritious matter in reserve for the exigences of the animal system.

Pathology of the Liver.—The liver of the horse is not frequently the seat of disease. Sometimes, however, it makes its appearance in one form, and at other times in another. Now and then it is attendant on or a consequence of disease existing in some neighbouring viscera, such, for instance, as the lungs or the intestines, and of this the practitioner must satisfy himself before he commences his treatment, since the influence of medicinal agents will be often attended with very different results. A cathartic in the one instance may destroy our patient, while in another it becomes the means of cure. The existence of an hepatic affection is occasionally detected by pain being evinced when pressure is applied to the right shoulder or to the right hypochondriac region; in this there is a resemblance to pleurisy. The bowels are prone to be constipated, and the fæces are discoloured and offensive. After the disease has existed for some time, the mucous membranes become tinged of a dirty yellow colour, which discolouration is owing to the bile becoming absorbed into the system. Now, this is a sure and certain pathological sign or symptom, and one which is not occasioned by, or dependent on, any other disease; nor can the liver be long diseased without some other organ or organs becoming more or less affected: nay, so much has this gland to do with the well-being of the animal economy, that there is scarcely an organ in the body that can be labouring under even deranged function without the liver sympathizing with it in a greater or a less degree. Its peculiar secretion, designated the bile, also becomes altered in quality and in quantity. Sometimes it becomes inspissated, and even hardened into masses, called gall-stones, or biliary calculi. These, by clogging up the duct, obstruct the flow of the bile into the duodenum, which in health flows as fast as it is

secreted ; in consequence of which obstruction the bile becomes heaped up in the secreting tubes, and is absorbed by the hepatic veins, producing a symptomatic and irritable fever. In fact, the liver, like all other organs, is liable to be acted upon beneficially or otherwise according to certain modifying circumstances ; such as habituation to over-heated stables, unusual exposure to cold, food to excess in quantity and bad in quality, &c. &c.

I am thus brought to the more important division of my subject ; and shall consider the diseases of the liver under two heads, namely, Acute and Chronic Hepatitis.

ACUTE HEPATITIS may be brought on suddenly or produced gradually, according to the causes operating in its generation. This seldom terminates fatally, yet it may make great ravages on the system, and leave the constitution in that state in which it will require only a trifling cause rapidly to put an end to the animal's existence. It may also terminate in chronic hepatitis, which produces its direful effects gradually, and at length interferes with, and perhaps undermines the healthy function of, every vital organ of the frame.

Causes of Acute Hepatitis.—The most frequent one is over-nutritive and too stimulating food, with want of exercise. It may also be brought on by unwholesome food, by violent exertion, checked perspiration, over-heated stables, contiguous inflammation of the bowels, lungs, &c., unusual exposure to cold, external injuries, contusions, blows, &c.

The *Symptoms* of this form are very similar to enteritis, the only distinguishing difference between the two being a yellowness of the mucous membranes. The animal lies down on his left side, and evinces pain upon pressure being applied to the right hypochondriac region, or to the top of the right shoulder: lameness is likewise occasionally present.

The blood being surcharged with bile, it becomes a source of excitation to the system generally. A feverish state is induced, with dulness, and the animal is off his feed ; the pulse is quickened, strong, and hard ; the animal looks frequently round to his right side ; the bowels are constipated ; the fæces discoloured ; there is difficulty in breathing, and, when the disease has existed a short time, the membranes of the eyes and mouth, &c., become tinged yellow.

Treatment.—In the first instance I would bleed, and that freely. I should next administer a dose of cathartic medicine, and throw up enemata. The animal being placed in a cool box, I should clothe the body and bandage the legs. The diet should consist of gruel, with mashes or tares. A blister may be applied or a seton passed over the right hypochondriac region. The action

of the bowels should be afterwards kept up by small doses of aloes. When convalescent, mild tonics may be given.

This form of hepatitis does not often terminate fatally, but it predisposes other organs to take on diseased action too readily, and that from very trifling causes; and when such action is set up, and the constitution is already suffering from the effects of the excitement produced by the impure blood circulating in the system, the animal has little power of resisting the attacks of the enemy, and rapidly sinks beneath its influence. The disorder may, however, be prevented from making such ravages by timely and judicious management even then; but it often leaves a weakened state of the organ, which not unfrequently takes on the character of chronic hepatitis.

CHRONIC HEPATITIS.—This stage may sometimes be the termination of the acute, as I have just said; or it may exist a length of time without any symptoms indicating that diseased action is going on.

Causes.—Most of those which give rise to the acute form.

Symptoms.—Loss of appetite and condition, costiveness, hide-bound, highly injected state of the visible mucous membranes, and, in some cases, an enlargement of the right hypochondriac region, with a chronic cough. In some cases, all these symptoms are present; in others, there may be very extensive disease going on, and yet no indication of it observed during the life of the animal.

The *Treatment* in this stage will be quite different to that in the acute. Here we have a weak and feeble pulse, therefore we are not warranted in abstracting blood. I should first administer a gentle cathartic, and then throw up enemias; this I should follow up by small doses of aloes and calomel, so as to keep the bowels in a relaxed state, and bring about a new and healthy action of the liver.

A blister may be applied to the side, and the diet may be liberal—the animal being placed in a loose box.

Terminations.—The most desirable certainly is in resolution, but sometimes it is in suppuration of the organ. Very frequently it is found, after death, much enlarged and softened. This condition of the liver has been termed by the French *ramollissement*, and in this state a rupture takes place, and death ensues from internal hæmorrhage.

Thus I have brought my imperfect remarks to a close; and, imperfect as I know them to be, I nevertheless, with all their faults, submit them to your consideration.

I have the honour to subscribe myself, Gentlemen,
Your obedient servant.

In reply to *Mr. Greaves*, *Mr. Wilks* said that the bile was secreted from venous blood—the blood which is collected from the abdominal viscera, and, by means of the vena portæ, carried to the liver; that the bile of the fœtus was produced in the same manner as in the adult, and that there were no valves to impede the progress of it through the vena portæ, instead of its passing through the vena cava posterior. It was said that a ligature had been tied round the vena portæ, but he thought this a very difficult thing to do.

Mr. Williams supposed that the fluid thus conveyed to the liver entered into the minute structure of that gland, where it underwent its important but somewhat mysterious change.

Mr. Wilks.—The bile has a useful influence in connexion with the process of digestion. It assists in removing that stimulating and inflammable matter which might have been productive of inconvenience or danger. In accomplishing this, it exerts a stimulant agency on the coats of the intestines. Why do we sometimes administer calomel? but because it induces a fluid state of the fæces by its influence on the mucous coat of the intestines, and they pass off more readily and in larger quantities? In some instances the intestinal discharge is more or less coloured by the bile. At other times, however, it is altogether colourless and very fluid.

Why is it not necessary that the horse should have a gall-bladder? Most other animals have it. It alters the quality of the bile, and by detaining it for awhile, renders it more stimulating: the horse, however, spends a considerable portion of his time in the act of feeding. The food is rapidly passing into the stomach, and as rapidly from thence into the intestines, and therefore is wanted a regular flow of bile into the intestinal canal.

The President observed, that a man could keep up the action of the bowels by the aid of medicine, therefore the flow of the bile is not a matter of so much consequence; at least, it is not absolutely necessary to life. It is different with regard to the horse. When the flow of bile is stopped in him he immediately begins to be in danger.

Several biliary calculi were here produced, which had caused considerable disease in the ruminant;—the horse had but one duct, through which the bile flowed as rapidly as it was formed.

Mr. Greaves said, that where the secretion of bile was diminished or suspended there was always constipation, shewing that one at least of its offices was to stimulate the intestinal canal. The bile stimulates the intestines of the adult, but, by a kind provision of nature, it has no effect on the fœtus.

Mr. Sibbald observed, that bile was necessary for the purpose of digestion; but there was still a question as to its mode of action. It mingles with the mucous and other secretions of the intestines, and probably has thus some chemical influence on the food.

A pupil stated that the secretion of bile is not so great in the horse as in other animals, but the whole of the bile passes through the liver; and when we consider the length of time it is there, we shall not wonder at the effects which it sometimes produces. It is well known, however, that all glands are comparatively larger in the fœtus than in the adult.

A student asked, Does *Mr. Wilks* believe that the blood of the fœtus goes through the liver, in order to be purified? It undergoes a very important change in the fœtus. The blood in other animals does not go through the liver: how does he account for this? No one has been able to account for it. The blood is changed in the horse by being conveyed through the vena portæ, instead of being conducted immediately into the vena cava posterior. Some are of opinion that it is purified by this process; but he should

imagine, that the longer the blood is detained in any part, the more impure it becomes.

What office does the secretion discharge in the fœtus? It keeps up the action of the intestines, and prepares them for the performance of their duty. The blood that is going to the liver in the fœtus is not of the same quality as that in the adult. In the fœtus it is comparatively pure—in the adult it is altogether changed.

A long conversation then ensued between Mr. Swinnerton, Mr. Walton, and other gentlemen, as to the character and appearance of the fæces as connected with the presence and agency of the bile. The bile in the horse—an animal destitute of a gall-bladder—was of a different character from that in the ox, where it was received in a certain reservoir, and there, probably, detained and modified. The bile of the horse was thinner, less dark in its colour, and less acrid than that of the ox. There was seldom any constipation without some change of colour in the fæces. They often became darker, and sometimes almost black: at other times varying from the colour of chaff to that of clover, and that depending on the nature of the food. When the fæces were dark, the bowels were generally constipated. The appearance of the membranes often varied according as the bile was poured into the intestines or absorbed in the general system. There was rarely total suspension of the bile, but frequently partial, and that detected by the colour of the fæces and the membranes. The intestinal membrane was sometimes covered with coagulated mucus, the external surface of the intestine being sometimes dark or black, but not so deeply coloured within.

Mr. Surmon asked whether, in cases of dyspepsia, the bile was increased or diminished. It was replied, that one of the most obvious proofs of dyspepsia was the diminished quantity of bile, and its altered hue, sometimes morbidly dark, and in others of an unduly light tint. The principal seat of disease seemed to be originally in the stomach, but the intestinal canal soon participated.

The debate closed by an observation on the use of the capsule of Glisson, a dense cellular tissue, accompanying and environing and supporting all the ramifications of the *vena portæ*.

Certificates of Membership were granted to Messrs. Sansom, Delany, Sayer, and Ellis, and of Fellowship to Messrs. Sayer and Delany.

MAY 25, 1841.

Mr. GREAVES, V.P., in the Chair.

The following communication was read from Mr. R. Pritchard, V.S., of Wolverhampton:—

To the President and Members of the Veterinary Medical Association the following case of Ruptured Stomach in the Horse is presented, by their obedient servant,

R. PRITCHARD.

I was led to a consideration of this case as one likely to afford some small degree of interest to the Association, from the perusal

of a communication by Mr. Sparrow, of Alford, to THE VETERINARIAN of the present month, prompting me to a retrospective consideration of this fatal lesion; and to shew how ambiguous the signs of disease often are in our speechless patients. I will proceed to relate the case, and then offer a short comment upon it, as an acknowledgment and small return for the repeated pleasure I have received from reading the published abstracts of the Association's proceedings.

On the 5th of Aug. 1840, I was requested to examine a well-bred gelding, young, and in good condition, employed in harness. The servant informed me, the horse had been driven the day previous ten miles in about an hour; that he rarely drank much water, nor did he before starting this his last journey; but had eaten his corn as usual, and appeared, in all respects, quite well. On his arrival home, and in the stable, he shewed signs of abdominal pain, such as pawing the litter, restlessness, drawing his penis and stretching himself to stale, and then lying down for a short time: these symptoms the servant considered as indicative of some obstruction of the urinary organs, and gave him a diuretic ball, hoping it would afford him effectual relief. This was done the last thing, it being the hour of closing the stables in the evening, and he was left for the night. Next morning, the horse was still in pain, with apparent intervals of ease, and I was then requested to examine him. His symptoms were, pulse steady, full, and about the natural standard; evident pain in the abdomen; pawing, stretching out, and drawing his penis without passing urine; occasionally the pain was more acute, and then he laid down, looked at his belly, and afterwards remained quiet for a short time. He would sip a little water, but refused his food. I gave an emollient enema, and examined him per rectum. The bladder was empty, and, as far as my manipulation could produce pressure, no increase of pain was observable. The capacity of the abdomen was diminished, with some tenderness expressed when pressure was made upon it. Further examination gave, occasional lying down; rolling over, followed by an interval of apparent ease. His dung was firm, and coated with a mucous envelope. I considered the case to be one of gastro-enteric irritation, and administered laxative and sedative agents in combination, from which no benefit was derived that could be observed. I ordered him gruel to drink frequently, and to be walked about quietly in hand. When out of the stable he appeared to have little the matter with him, looking somewhat tight in his belly and dolorous in his eye, but perfectly cool in his skin, and in his manner tranquil; and so he continued while led out. When taken

into the stable the symptoms previously described returned. He drank a little, but ate nothing that was offered.

Third day.—Horse much the same; pulse but little disturbed. During the intervals of the acute paroxysms, he would stand quiet for an hour, hanging his head down; sometimes lie down and remain in a state of quiet tranquillity for the same period; but it was evident he was never free from pain. He had staled during the night, but had not dunged. I repeated the aperient and sedative medicines, and a strong stimulant was rubbed on the belly. He was then walked out quietly in hand. When out, he appeared just as yesterday; pacified by the little employment, and without any urgent symptoms; but on his return to the stable, the same peculiarity was observed in his manners: he neither ate nor drank, and nausea kept the pulse low. Gruel was horned down, and repeated occasionally. In the evening the bowels responded to the medicine, and he also passed an ordinary quantity of urine; these evacuations, however, were not followed by any symptoms of improvement.

Fourth day.—He had been very restless through the night, pawing, rolling, and lying upon his back, in which position he appeared most easy. Gruel had been given during the night, and his bowels and kidneys were acting freely. Pulse full and steady; 43 per minute. His tranquillity and painful paroxysms alternating much as yesterday. No medicine to-day: left him entirely to the action of the opening medicine.

Fifth day.—He was in a great deal of pain this morning, and had been so most of the night. Gave tinct. opii in gruel, and repeated it at intervals of two or three hours. The opium had no controul over the pain, and, indeed, produced no sedative effect whatever; but, instead, the pain was much increased after taking it. Plain gruel was then given, and this also produced considerable pain when horned down. He became easier in the evening, and lay quiet through the night, without even disturbing his bedding.

Sixth day.—His pulse still good, and but little increased: nothing in it characteristic of inflammatory action or prostration of strength. He ate a little hay and scalded oats with bran in the morning, and his pain was much increased afterwards for a while, and then he appeared much as before. He sipped a little water occasionally through the day and night. His skin remains cool and free from perspiration, as it had hitherto done the whole time. The surface of the belly was sore, tender, and painful on pressure; and he made considerable objection to have it handled. When down, he sometimes rolled on his back, and was easiest in that position. No medicine given, as it only added to his suffering.

Seventh day.—Little change had taken place: his pulse was but triflingly increased; the pain continued, and he got weaker; sipped his water, which was every thing he took; laid down the principal part of his time; and at long intervals had a roll upon his back.

Eighth day.—Had a bad night, and a very serious change had taken place in the symptoms. The animal lay in great agony: his pulse was quick, weak, and obscure. His eye expressed much anxiety and inward suffering; the extremities were cold, and chilly perspiration covered the surface of the body. He endured these agonies until the evening, when he died.

Section cadaveris.—This was carried into effect immediately. On laying open the abdominal cavity, I discovered a large quantity of faecal fluid mixed with the gastric aliment. A portion of masticated hay and oats, enveloped in the omentum, lay near an opening in the superior surface of the stomach; this rent or aperture was about eight inches in length, taking a line with the demarcation formed by the margins of the cuticular and mucous surfaces of the organ. The edges of the lesion were much rounded by the natural contractility of the tissues, and presented recent injection of blood. The mucous coat was very much injected, and of a deep colour, like that of venous blood. The peritoneum was everywhere free from inflammation, except where the ingesta lay.

Observations.—I am of opinion this horse's stomach was ruptured during the last journey: the lesion may have extended through the mucous and muscular tunics only, the peritoneal coat remaining entire in the first instance; the rent in the peritoneal tunic being a secondary lesion, by which the wound of the stomach was rendered complete, and the communication between the gastric and peritoneal cavities perfected. The primary lesion may have been the reverse of the above description, that is, through the peritoneal and muscular coats, leaving the mucous tunic as the wall to the gastric cavity; but, from circumstances above-named, this last supposition is not so probable. Thirdly, the lesion may have extended through all the coats, and have been so limited in extent as to have retained the solid aliment within the stomach by the inherent power of contractility in the walls of the organ. I incline to the latter form of the accident, from the several phenomena presented during the progress of illness. First, from the nausea set up at the commencement of the case, and the obstinate refusal of food; secondly, from the augmentation of pain repeatedly succeeding the administration of medicine, and the total absence of every symptom by which a mitigation of suffering is recognised; and, thirdly, from the paroxysms of acute pain and abdominal constriction, the tenderness of the

belly, and return of the appetite when nothing but a bland fluid was taken. The state of the circulation, and the continuance for so long a period without considerable aggravation of the symptoms, serve further to strengthen this opinion of the latter form of the lesion. However, the opium, when given in full doses in bland fluid, failing to afford the least temporary relief, was in itself powerful evidence of the existence of the rupture; and the paroxysms of acute pain were affirmative of occasional small fluid discharges from the stomach through the wound. The state of the pulse and the continuance of the symptoms, with only trifling increase of their painful character up to the night following the seventh day of the case, were sufficient to shew that the secondary lesion, constituting the extensive wound presented on dissection, had not taken place previous to that time; and that the escape of solid aliment from the stomach into the peritoneal cavity never took place before the secondary lesion and enlarging of the ruptured aperture. Howbeit, these contemplative remarks are not intended to constrain the speculative observations of the President and Gentlemen present. The case is one of no ordinary description; and if it should serve to elicit remarks from those who have witnessed similar fatal lesions in the horse, and in some degree prove interesting, the communication will have fulfilled every intention I had of forwarding it to the Association.

On reference to the third day's account of the case, it will be observed, that the horse's bowels acted from the aloes, and his kidneys responded to the stimulus of the diuretic medicine; proving the passage of fluid as well as solid aliment from the stomach to the intestinal canal. It is possible, and probable too, that a small quantity of fluid aliment escaped from the stomach into the cavity of the peritoneum early in the case, and this produced the acute colicky pains; but it must have been a very small quantity, otherwise the pulse would have indicated the consequent irritation, and the reverse of diminution of capacity in the abdomen would have been observed. The solid aliment found without the stomach was what he had eaten during the night of the sixth and the morning of the seventh day. There was a considerable quantity of fluid in the abdominal cavity, but not more than might have been taken by the mouth in twenty-four hours.

What was the cause of the rupture? The horse had eaten a moderate allowance of food previous to his journey, and drunk but a small quantity of water; the travelling pace was ten miles for one hour, without any apparent difficulty, and which he had been accomplishing four days a week for some time. There were no signs of distention of the stomach during life. On dissection, the stomach was found healthy—no morbid changes in its walls—

no appearance of atrophy, or softening, and the whole of the other viscera in a normal state. *Query*, Had a servant kicked or otherwise given him a severe blow in the left hypochondrium? This is more than probable, for a want of humanity towards the speechless horse is remarkable in equine domestics. This horse was in good working condition, without obesity, and in good wind. The probability of muscular compression by the diaphragm or abdominal muscles, or of the walls of the stomach alone or during interposition of the other viscera, is too equivocal. I now leave the case to make a remark upon vomition as a symptom of rupture of the stomach in the horse. I read of it as occurring in the practice of some veterinary surgeons frequently; and it is somewhat singular that I should have been in the profession so many years, and never once have witnessed ejection from the stomach per nasum. It is a symptom of this lesion in the human subject; also of perforations, strangulations, and hernial conditions of the intestines. Dogs and carnivorous quadrupeds vomit with facility; but it is exceedingly difficult in the horse: the cardiac orifice of his stomach is very strong, from the two thick muscular bands entering into the formation of this entrance; and so powerfully do their muscular fibres resist the return of aliment from the stomach into the œsophagus, that I have witnessed horses under the influence of the radix veratri make repeated attempts to vomit without the ability to accomplish it. But in cases of rupture of the stomach, strangulation and hernial states of the intestines, I have seen many horses die, with all the agonies those fatal lesions produce, without ever once witnessing even an attempt at vomition. It must not be understood that I impugn or even question the veracity of those who have kindly informed us of the phenomenon: I, with others, feel obliged for the information, and make these remarks from the circumstance only of never having observed it in my practice.

I think it possible, under states of dying collapse, when the vital energies of the frame are so far exhausted as to no longer carry on the functions of the organic structures efficiently for the purposes of life, that internal convulsion may overcome the resistance of the cardiac orifice, much in the same way as those contractions do the sphincter of the bladder; and thus ejection of aliment from the stomach through the nostrils or mouth, or both, or into the trachea, take place.

In cases of forcible distention of the stomach from aliment and gas, as in acute indigestion, fluids forced upon the animal will remain for some time in the thoracic portion of the œsophagus, which may or may not be returned; so, when stricture of the œsophagean canal exists far down, the horse will both eat and

drink, and, after awhile, eject the whole back in an offensive state. Some horses, too, are empowered, by feelings of disgust, I presume, to hold bells far down the throat, and return them into the manger when left for a few minutes ; but I never saw a horse fairly vomit the contents of his stomach, yet so many horses die with rupture, perforations of the stomach, as also of the intestinal tube, strangulation, and hernial strictures of the bowels. Without this symptom, I think we cannot properly enumerate vomition as one of the pathognomonic characters of those frequent and fatal maladies.

It is with very considerable pleasure I witness the gradually increasing usefulness of the Association. Great praise is due to those whose shoulders have been so constantly at the wheel ; and I beg they will accept from me that commendation their labours so justly merit.

Many of the essays are excellent, and reflect great credit on the authors of them. To these some interesting cases have been added. These illustrations of disease are always valuable, because they are practical matter, one grain of which is truly worth a pound of theory. Let them be but correctly told, without varnish and colouring, and discussed with care and caution, they then, perhaps, form the most useful records of every medical society.

To this followed a letter from Mr. J. STOWE, of Warwick.

Sir,—At one of the discussions which recently took place in the Veterinary Medical Association, upon Pneumonia in Cattle, I stated that it required a period of eight or ten days to cause suppuration in the skin of the ox ; others asserted that they had frequently seen it produced in thirty-six hours after the insertion of a seton. Mr. Toll was one of the gentlemen who concurred with the latter view ; but before the close of the meeting, Professor Spooner and Mr. Simonds came to the conclusion that it required four or five days.

Although this was high authority, I was not by any means satisfied in my own mind as to the correctness of the statement ; but thinking that I might have outstepped the limit due, I was induced to remain silent until I had another opportunity of investigating the matter. Since I have been at home, three cases have come under my observation, which have fully confirmed the correctness of my assertion.

The two first were cows labouring under the epizootic. A seton was inserted in the dewlap of each, which produced a considerable degree of tumefaction, and a copious discharge of serum,

in about twenty-four hours, which continued for nine days, and on the tenth day there was a very slight discharge of pus.

The third case was that of a cow with an inflamed udder: the ordinary antiphlogistic remedies were had recourse to, and I likewise inserted a seton in her dewlap. In the two former cases there was not a particle of pus formed until the tenth day, and the latter did not suppurate until the eleventh, and then the pus was only visible on the most minute inspection; but the day following it suppurated freely. I think, Sir, you will concur with me, that we should not meet with so many discrepancies in opinion if authors would be governed more by practical observations, rather than borrowing from each other from one generation to another.

I must conclude by wishing prosperity to the Association.

I am, Sir, &c.

The discussion of the Essay on the Pathology of the Liver, by Mr. WILKS, was now resumed.

Mr. Carter.—Mr. Wilks talks of a blister—what kind of one would he apply?

Mr. Wilks.—One consisting of equal parts of common oil and ammonia; however, he did not care much of what ingredients the blister was composed.

Mr. Wilks now replied to various questions that were put to him. He would bandage the legs, for there is generally considerable coldness of the extremities. He should be afraid of calomel in acute hepatitis, from its peculiar action on the liver, setting up more inflammation. All the different structures in the liver would probably partake of the irritation. He should have no objection to its being given in the latter stages in small doses. Inflammation of the liver is most frequently the consequence of the absorption of bile. The secretion is not afterwards carried on with the same ease and good effect. He would not abstract blood in chronic cases when there was a feeble pulse. If the pulse was strong, he should have no objection. He should be guided by circumstances. The pulse is usually of the same character as in hepatitis. It is a full bounding pulse, but different from that which is generally found in pleurisy. He has not seen many cases of it in the acute state. Stimulants which might be useful in chronic stages would, of course, be objectionable in the early and acute stage. In acute hepatitis there is either partial or total suspension of the secretion. Authors, however, differ about this. In the acute stage he would certainly bleed and purge. Most certainly, also, he would not in this stage give calomel—a stimulant to a gland already inflamed. In an after-stage he would give it in order to recall the healthy action of the organ.

Mr. Carter.—Mr. Wilks has not stated what tonics he would use after the acute stage has passed. Would he give compounds of iron and gentian? He had seen them much used.

Mr. Wilks, in treating a disease so obscure as that of the liver, hesitated in speaking confidently of any treatment. It sympathizes with so many other maladies that we must pause before we confidently act. Our first and most serious consideration must be given to the symptoms with which the disease of the liver is connected. Ramollissement may exist unknown and unsus-

pected, until suddenly, and when too late, it becomes developed. This disease usually terminates in the death of the patient. It is the unsuspected and the fatal herald of rupture of the liver.

The symptoms of rupture, when we are able to recognise them, are a feeble pulse, and the membranes yellow or white. What are we to do in this case? It is at best a forlorn hope. The fissure, however, may as yet be small, and the oozing inconsiderable; then bleed. Bleed largely, regarding, nevertheless, the state of the patient. There will probably be constipation of the bowels. That must be attended to, and some mild stimulant may be resorted to, in order to support the strength of the patient.

The diseases of the liver are oftener and more closely connected with diseases of other organs than we are aware of. His master was very anxious to examine every dead horse, and in nine cases out of ten, in those that died of inflammation, the liver was more or less affected.

Mr. Williams was perfectly assured that the liver was the organ as much connected, or more so than any other, with the general health of the system. A slight disease of it would deteriorate the quality of the blood, and every organ of the body would sympathize with this.

The Chairman had had several opportunities of witnessing this disease, and, referring to the interesting case sent by *Mr. Pritchard*, said that he had seen one or two cases of ruptured stomach. The symptoms were those of acute indigestion. The pains continued several days before death took place, and frequent attempts to vomit, and actual vomition—a very rare thing in the horse—took place. To this soon succeeded rupture of the stomach; but, perhaps, the horse for some days survived this lesion.

He could not agree with one thing in the communication that had just been read. *Mr. Pritchard* recommended walking exercise; but, in his opinion, the quieter the horse was kept the better. When the stomach is overloaded, rupture of that viscera was not unlikely to take place if much exercise was resorted to.

Mr. Wilks was inclined to think that the disease originated from a blow, as its history does not shew that there was any food likely to cause distention or the fermentative process in the stomach. He does not hold with giving exercise in cases of distended stomach.

The symptoms here were not those of rupture, but apparently those in which gentle exercise would be of great service. He confessed, however, that he had not seen a case of ruptured stomach.

Mr. Carter said that perfect rupture could not have taken place from the cause to which *Mr. Wilks* alluded.

The Secretary observed, that there might have been rupture of one or more of the tunics, but not of the whole of them.

Mr. Carter.—There would have been circumstances that could scarcely have been mistaken, such as tenderness, swelling, or effusion of blood, if this lesion had been produced by a violent blow.

Mr. Wilks said that it should be remembered that the stomach is not far from the posterior rib, and therefore liable to this accident. He concurred with the observations of *Mr. Pritchard*, that the want of humanity towards the speechless horse is disgracefully remarkable in many of our stable establishments. Reverting to the subject matter of discussion, he would say that *Professor Spooner* examines the state of the bowels at the very commencement of his attendance. He always looks at the fæces. This is good practice, and should be universally followed.

Mr. Carter.—What kind of horse is most subject to these attacks?

Mr. Wilks.—The heavy horse, and he that is not submitted to proper exercise. Sometimes both of these apparently opposite causes produce the

same effects. The navicular joint is an illustration of this,—it is equally injured by over-exercise and by no exercise at all.

Mr. Sibbald said that it was the same with all horses. Those that are fully or over-fed are most liable to inflammation and rupture of the liver. Poor horses are rarely attacked by either.

Mr. Wilks said, all fat horses are subject to disease of the liver, which is almost entirely dependent on a plethoric state of the system. Feeding is only a predisposing disease. Where are there better fed horses than the race-horse? The want of exercise is the principal, or, perhaps, the only cause of plethora.

Mr. Sibbald has observed the condition of the race-horse. He is put early to the test, and hardly worked. There is no time for a diseased state of the liver to be formed, and his food and his work are at certain and fixed hours. Post-horses are exposed to numerous causes of ruptured liver, from the sudden and violent work to which they are exposed. Both post and cart-horses are equally subject to liver disease. So is the heavy dray-horse.

Mr. Carter.—How does *Mr. Wilks* account for the pains in the shoulders, and occasional lameness which occurs?

Mr. Wilks.—By inflammation and sympathy of the contiguous parts.

The hour of adjournment had now arrived, and the meeting separated.

JUNE 1, 1841.

The PRESIDENT in the Chair.

The Secretary said, that many would remember that, a short time since, he had the pleasure of reading a communication from *Mr. Stanley*, of Leamington, in which he stated that he had taken two large calculi from the stomach of a horse. Believing such a circumstance to be unprecedented, he ventured to solicit the presentation of one of them to the Association, having, at the same time, another object in view, namely, its analyzation.

Mr. Stanley, with a kindness that must be appreciated by all, had at once complied with his request; and one of the two concretions, with others, was now before them. The letter that accompanied it he should presently read; but he begged leave to say, that if no one else took the subject up, and in the absence of better matter, should he be permitted, he would introduce a paper on calcular concretions generally at the commencement of the next session.

Dear Morton,—I beg to acknowledge the receipt of your last letter, stating that you wish to have one of the calculi taken from the horse's stomach sent you for the purpose of analysing

it. I attach great store to all my curious preparations; but I readily comply with your request. It seems to consist chiefly of matter derived from the bran, mixed with the secretions of the stomach, and which do not act sufficiently to cause their proper digestion; hence some portion aggregates into a mass, and by some agent is converted into stone. Probably you will be able to find it out. Millers' horses are most liable to them; but I never heard of two being found in the stomach of the size of those now sent. Several instances of a single calculus being met with have fallen under my notice.

The horse from whom the two were taken by me was looking as healthy as could be desired previous to the attack. It was rather a singular case. The rectum was empty from the first day, and one's hand could not be passed above a foot up it. I thought at one time there was a stricture in that gut. He drank his water and ate grass, and occasionally a little mash, during the week. I have before remarked that a casual observer would think nothing ailed him: but after the third day I had no hope. There were those peculiar symptoms about him that I felt convinced skill could not remove.

The other stone was the immediate cause of death, being wedged, as I have told you, in the pyloric orifice of the stomach.

The duodenum was found in a state of gangrene to the extent of about two feet; but the lining membrane of the stomach was very little—I should say not at all—inflamed from the calculus; all the evil that existed being produced by the medicine given.

It seems curious how the water passed so readily into the cæcum, when it was unable at first to find its way into the duodenum. One day, the animal being rather thirsty, I let him satiate his thirst, when he drank two pailfuls (about ten gallons), without any inconvenience.

The other calculus I have, through the desire of a medical friend, presented to the Archeological Institution at Warwick.

I send you another calculus taken from the bladder of a cart-horse, that never shewed any illness all his life, until two hours before death, and which then began by symptoms of spasms. After death this stone was discovered; the body of the bladder being much ulcerated, partly through the rough exterior of the stone acting as an irritant, and causing disease of its membrane. There is also a third stone, which looks to me like the usual intestinal concretions. It was voided by a mare about three weeks ago. She is now in regular work, and looks as well as harness horses usually do that are worked hard. You, probably, have many of these; but I thought it would serve to fill up the basket, and might not be uninteresting.

This is not the only instance I have known of a calculus being formed in the stomach. I have one now in my surgery, given me by my late friend, Mr. Armstrong, veterinary surgeon, of Birmingham. It is, in substance, like those I extracted. It was taken by him from a miller's horse, some years ago. Mr. Rose has also one of the same kind, taken out of a miller's horse's stomach by his late instructor, Mr. Palpey, of Coventry, and which was nearly as large as the one you have. Mr. Armstrong's was about three-parts the size of that; but I believe the existence of two is a rare occurrence, at least I have never heard or read of the like.

Had not the calculus insinuated itself into the duodenum, the horse would, in all probability, have been alive now; for the stomach did not seem so much diseased as might have been expected, the exterior of the calculi being smooth. My opinion is, that were aged horses belonging to millers, that had been hard worked, and fed on vitiated bran and stuff from the mill, which is not saleable, to be always opened, these concretions would be more frequently met with.

Organic diseases of the heart and liver have not been uncommon in this country of late, and, I am sorry to say, the majority of them have terminated fatally. But the post-mortem examinations have satisfied their owners that medical skill was of no use; to such extent had the liver and heart been disorganized. I will relate a case that I had of a chestnut horse, belonging to Captain Drummond.

He was taken ill on his way home after hunting, although during the chase he had appeared as well as usual.

He began to falter about a mile from his stable; shivered, drooped his head, and could scarcely walk. He was bled, and placed in a loose box. I saw him the next day, when the following symptoms were present:—A peculiar full and hard pulse, about 80; legs extremely cold; mouth clammy, and the membrane covered with a yellow secretion; his breathing by no means laborious, but very peculiar, being very short, and a little flurried; pain in the iliac regions of both sides, with a peculiar expression of his eyes, the pupils being unusually dilated. To a bystander he looked worth a hundred dead ones; but these indications conveyed to the veterinary surgeon that there is that the matter with the animal which will put to defiance all his remedial measures.

I gave the owner, from the beginning, no hope of his recovery. After two days, the heart's action was much increased, and sounded like the beat of a drum, and as he lingered, it rose to 140 a minute. Sedatives, bleeding, setons, blisters, &c. were resorted to, but all in vain. He would sometimes purge, and the dejections were very fetid; at other times the faeces would be in lumps,

and coated with mucus. From the peculiarity of the pulse, I suspected effusion into the pericardium. He lived for a fortnight, scarcely eating any thing, but gradually sinking, until death terminated his sufferings.

On a *post-mortem examination*, the liver was completely disorganized, and of a clay-colour. About a gallon of water was found in the pericardium, which was much thickened. The heart itself was hypertrophied, and weighed fourteen pounds and a half. The lungs were sound.

There is one symptom these cases invariably shewed previous to death, and that is, the animals will walk at a brisk pace in a ring or circle within their box for a day or two, and for the last twelve hours scarcely ever ceasing until they die. One horse I had under my care walked at the rate of four miles an hour for thirty hours before he died. When that symptom shews itself, it is *all up!*

Some other cases exhibited much anxiety of countenance, with disinclination to lie down or to be stirred, and pain in the iliac regions in both sides.

One instance was the most singular I ever saw or heard of. In addition to the heart and liver being disorganized, pus was found in the pelves of *both* kidneys; one ovum being entirely obliterated or absorbed from disease set up, and its peritoneal tunic filled with coagulated blood to the size of a large orange; the other not being of the usual size, while in the mucous membrane of the uterus, cornua, and fallopian tubes, were patches of inflammation and thickening. Upon first looking at the part, one would almost think that the animal had been injured, but the case proves that it was from disease. She was a valuable mare, worth 200 guineas, and her owner, who has been a resident in India, and is a large horse-owner, informed me that he had lost several horses of organic inflammation; and they seldom lived in that country above thirty-six hours.

This mare died on the fifth day. She was, to all appearance, in beautiful hunting condition; but in the symptoms there was an absence of the loud beating of the heart—the pulse being peculiarly indistinct, and having a wiry feel, in which bleeding produced no change. Whenever this sound is distinctly heard, I venture to prognosticate effusion into the pericardial sac.

The horse that walked round the box so long died on the fourth day. His liver was of a marble colour, and no part sound; the substance of his heart was diminished, softened, and flaccid, and of a pale colour; in fact, this organ did not appear above three parts the usual size. The internal surface of the pericardium was highly inflamed, but no effusion had taken place.

Your patience is probably exhausted by this long account; but you wished for a history of these cases, and I readily comply with your wish, and hope you will not have many of this kind.

I am of opinion that, if the veterinary surgeon would more frequently take the trouble of examining his patients after death, he would find the liver and heart to be oftener diseased than is generally supposed. The liver is the remote cause, the heart being secondarily affected. The blood, in consequence of the derangement of the liver, becomes vitiated, and the heart acting upon it, becomes itself functionally deranged. In time, organic disease is set up; for derangement goes on unperceived in the liver, until the fountain is no longer able to act on the blood, and from hence no streams being any longer sent forth, life must necessarily cease.

The Secretary then read his Report for the Session as follows.

THE SECRETARY'S REPORT FOR 1840-41,

FIFTH SESSION.

“Nothing extenuate,
Nor set down aught in malice.”

Othello.

A HIGH degree of gratification pervades the mind when about to enter on the recording of events, passing or passed, that have proved profitable; and the reverse obtains when we can see indications of a loss having been sustained, or likely to be.

To mark, from time to time, the progress of an institution so intimately connected with the science of veterinary medicine as the Veterinary Medical Association, cannot fail to awaken feelings either of pleasure or of pain, as we are called upon to notice its continued advance, or to lament its retrogression. Whether the one or the other has taken place, the following analysis of our proceedings for the session will best shew. For my own part, I am inclined to think that, while there is much to call forth feelings of exultation, there is also much to cause depression. All certainly has not been realised that was anticipated when the Association was formed; and yet much has been effected. Unfortunately, too, there has not been that co-operation at our meetings which is so desirable. The elder members have withheld themselves, and the juniors, consequently, have been left a little too much to their own endeavours. Thus, fair Science has languished, because she has not received the support she had a right to expect, and weight has necessarily been thrown upon

shoulders not yet inured to burthen. This is not as it should be : but more on this head hereafter.

The ANNIVERSARY MEETING, if not so numerously attended as its predecessor, shewed that the same oneness of sentiment and kindness of feeling existed as at first ; and that, not only among the members themselves, but also between them and their brethren in the other branch of medical science. It will be the earnest endeavour of every rightly-constituted mind to maintain this professional intimacy, by which, it is confidently predicted, will be ensured a reciprocal advantage.

At the first business-meeting, after the election of the officers for the session, the Secretary had the pleasure of announcing that, during the recess, the Association had not been forgotten by its friends. Presents of several works had been made by their respective authors to the library ; and many morbid specimens forwarded to elucidate the history of the cases that accompanied them.

The request made on the part of the Veterinary Societies of Calvados and La Manche, as well as that of Finistere, "that a union might be effected between them and the Association, and an exchange of the published abstract of the proceedings of each society take place," may be viewed as constituting an epoch in our history. Nor was the council slow in appreciating the intentions of these institutions, but at once acceded to their request. Thus will the libraries of each become enriched with the other's labours ; and, in after years, it is hoped that they will constitute a valuable and an important addition.

What so delightful to a mind rightly constituted as the propagation of truth ? It is the wing on which we ascend to heaven. What so calculated to advance science as the diffusion of right principles ? Without them she is but the slave of empiricism. What can be put into competition with knowledge ? or what given in exchange for wisdom ? "She is more precious than rubies, and all the things we can desire are not to be compared unto her." Let us, then, not become weary of well-doing, for, assuredly, we shall ultimately reap our reward if we faint not.

COMMUNICATIONS.

In this division we have been extremely rich. The subject of influenza, introduced by Mr. Spooner, of Southampton, drew from the pens of Messrs. Hayes, Hughes, Law, Lepper, Mayer, jun., Raddall, Snewing, and Tombs, communications containing information of a highly valuable, because of a practical, nature ; and which afforded ample proof of the interest these gentlemen continue to take in our welfare.

The disease designated Puerperal Fever in Cattle, to which the attention of the members was directed by an admirable paper from the pen of Mr. Dawber, of Liverpool, likewise received elucidation by letters from Messrs. Dickens, Mayer, Titchmarsh, and Wardle.

Mr. Stevens, of Newmarket, forwarded a description of two cases of rupture of the intestines, the indications of which, during life, having been very obscure.

The cases of poisoning by arsenious acid, communicated by Mr. Tombs, of Pershore, and the effects of the potassio-tartrate of antimony, as shewn by portions of the stomach sent by Mr. Moon, from Sheffield, cannot fail to make their due impression on the profession. The writer of this Report may, perhaps, throw in his claim here to a discovery arising from the investigation of the morbid parts, which he has reason to hope may be useful to the profession.

Mr. Bainbridge, of Saffron Walden, furnished us with the post-mortem appearances presented in two beasts that had died of an inflammatory attack supervening on the epizootic that has been so long prevalent among cattle.

Mr. C. S. Robinson, of Orsett, detailed a successful case of operation for scrotal hernia in a colt: also a singular instance of malformation in a foal, that lived some days, the ureters being found terminating on the external surface of the bladder, by which the abdominal cavity was filled to distention with urine.

Mr. W. Wright, of Burnham, communicated the effects of certain medicaments on the horse, which this Association may claim the honour of having made known to their professional brethren, with many other cases of interest; Mr. Dickens also communicated the means had recourse to by him for the destruction of filariæ in the bronchi of calves.

The singular case of the ossified brain of a cow, transmitted by Mr. Gloag, of the 10th Hussars, cannot fail to awaken thought how so important an organ could have been in great part removed, and bony matter deposited in its place, and yet all the ordinary functions of vitality carried on.

Mr. J. R. Hoey, of the Hon. East India Company's service, forwarded to us several cases of kumree and ruptured stomach that had fallen under his notice since he had been in India.

Mr. Wardle, of Mortlake, reported to us, that he had successfully performed the operation of subcutaneous periosteotomy in two cases of spavin.

Mr. Stanley, of Leamington, gave us a highly valuable account of the advantages derivable from a division of the posterior tibial nerve in the same affection; with cases of fatal organic

disease of the heart and liver ; also an unprecedented instance of two immense calculi found in the stomach of a horse, one of which he kindly presented to the Association.

Mr. Pritchard, of Wolverhampton, closed this important division by the details of a case of ruptured stomach, with comments worthy of himself and the profession of which he is a member.

All this is illustrative of the advances now being made in the science of veterinary medicine. "*Esto perpetua.*"

CONTRIBUTIONS TO MORBID PATHOLOGY.

In this section there has likewise been no falling off.

Mr. Simonds was early in the field, and laid upon the table some interesting lesions that had taken place in a class of animals, perhaps, a little too much neglected by veterinarians generally,—the pig and the dog. Subsequently he furnished us with specimens of diseased brain, and the spinal column with its theca from a cow that had died after parturition, and which admirably exemplified the views himself, Mr. Dawber, and others have taken of this disease.

To Mr. Daws we were also indebted for several morbid parts. He first presented a diseased hock, beautifully shewing the effects produced by the extension of inflammation from a punctured wound to the joint itself. This was followed by a fractured sessamoid bone, and an engorged spleen, the weight of which was 22½ lbs.

The Thanks of the Members were transmitted

To Mr. Kent, for his singular specimen of intussusception of the apex of the cæcum ;

To Mr. Meginnis, for an enormously large tumour removed from the scrotum of a horse ;

To Mr. Tombs, for a collection of cysts and tumours containing pus and particles of calcareous matter, taken from the thorax of a bullock ;

To the same gentleman we were subsequently indebted for a very interesting specimen of fractured os coronæ and naviculare, after the operation of neurotomy ;

To Mr. Stevens, for a sarcomatous tumour attached to the ventricle of a sheep's heart ;

To Mr. Lepper, for the lungs of a cow affected with scrofula ; and several ribs of the same animal, in the cancellated structure of which small abscesses had formed ; also for the trachea, &c. of a calf, containing filaria.

To Mr. Darby, for the bronchial tubes of the same animal, in which these parasites were undulating in very great numbers, and which had been the cause of many fatal cases of bronchitis.

To Mr. Batchelder, for a peculiar fatty tumour that had formed on the intestinal tube, and through the divisions of which the ilium had passed. During life it had been the frequent cause of attacks resembling spasmodic colic.

To Mr. Balls, for a somewhat uncommon exemplification of a sloughing heel that had been the remote cause of death in a horse. Probably the immediate cause was injudicious treatment.

To Mr. W. C. Spooner, for the kidney of a pig, to which was attached a large cyst containing serum. By its pressure, absorption of a very considerable part of the organ had been caused, which, however, appeared in nowise to have interfered with the general health of the animal.

To Mr. W. Marshall, for a considerable portion of the penis of a horse, which, having become scirrhus and ulcerated, he had found necessary to amputate.

To Mr. Cupiss, for the trachea of a horse, in the lower part of which an abscess had formed, and which, bursting, had suffocated the animal.

To Mr. Ernes, for a fractured navicular bone, with the history of the case in which it had occurred.

To Mr. J. Bowles, for a very interesting specimen of an ossified aneurism of the posterior aorta, and a transversely fractured large pastern bone: and

To Mr. Stanley, for one of the calculi taken from the stomach of a horse, referred to in the previous section.

ESSAYS.

The Prize Essays, by Messrs. Hughes and Litt, ON THE TEETH OF OUR DOMESTICATED ANIMALS, call for no comments; they proudly mark the onward progress of our art.

The first thesis for discussion was by Mr. W. C. Spooner, on the then prevailing INFLUENZA AMONG HORSES: coming from his pen stamped it with value; while the collateral aids it received from the communications already adverted to must render it of the greatest worth to the profession.

The opinion of the members having been solicited on a disease peculiar to foals, by Mons. Lecoq, Secretary to the Veterinary Society of Calvados, &c., its translation was kindly undertaken by Mr. Ernes, C.M. for Foreign Correspondence. The observations that fell from those who took part in its consideration may not be undeserving of notice.

The next subject introduced was PUERPERAL FEVER, by Mr.

Dawber. The illustrative cases adduced by him, to bear out the new views which he had taken of this disease, are proofs of his industry and observant powers. Here, too, we were enabled to record the opinions of those whom distance or other circumstances prevented from being present with us.

This was followed by a useful paper on LAMINITIS IN THE HORSE, by Mr. Wallis.

Mr. Sayer next introduced an Essay upon DYSENTERY IN SHEEP, thus directing the attention of members to a division of veterinary science too long neglected in this country. Other and more consistent views, however, are now taken, and soon, it is confidently hoped, all will be rightly directed.

Mr. Greaves presented a thesis on INDIGESTION IN THE HORSE, the consideration of which, although nothing novel was adduced, from the subject having been before introduced, cannot fail of being beneficial, by directing the attention of those who have not yet embarked in the practice of their profession to an all-important subject.

Mr. Fryer's Essay on PNEUMONIA IN THE COW, contrasted with the same disease in the horse, although, perhaps, in some parts, savouring of a spirit unfortunately indulged in by too many, and which it would be well if none were found to foster and encourage, did credit to the inquiring mind of its author; for he only is likely to become eminent in his profession who will watch the progress of disease, and observe and record the effects the remedies employed may have. He may, at the beginning, fall into many errors, but experience will be sure to correct them.

The selection of nearly the same subject by Mr. Toll may have been thought by some unfortunate; but its consideration served, at least, to settle many points of disputation, while its introduction gave assurance that an interest is felt by many professional friends in our welfare; Mr. Toll not having deemed it too much labour personally to attend and defend his thesis, although he resided at a great distance from town.

Mr. Litt's paper on the HOCK JOINT will have been read with much pleasure, and the argument that it awakened with some degree of profit. The counterpart to this was Mr. Loader's on the KNEE JOINT; but in the discussion, "what a falling off was there!" Probably the similarity of the subjects may have been in part the cause, and this may operate as a cautionary lesson to future aspirants.

Mr. Delany's Essay on the SKIN AND ITS DISEASES was not without its merits, although the discussion was desultory, arising from the extensiveness of the subject; an error into which many members of the Association, in their excess of zeal, have fallen.

Mr. Wills introduced a useful paper on **FISTULOUS WOUNDS**, which was followed by one on **TETANUS** by Mr. Williamson, in which the most approved mode of treatment, because the most successful, was warmly advocated.

To this succeeded an **ESSAY ON THE LIVER**, by Mr. Wilkes, with which were closed the meetings for discussion.—The number of Essays introduced have been fourteen, exclusive of the Prize Essays: of these,

Mr. W. C. Spooner's, on Influenza;
Mr. T. Greaves', on Indigestion;
Mr. W. Litt's, on the Hock Joint; and
Mr. C. Wills, on Fistulous Wounds,

have been deemed worthy of the "special thanks of the Association," by which they rank as Honorary Fellows.

PRIZE ESSAYS.

It is gratifying to see an emulative spirit awakened among the students, each nobly endeavouring to excel, and the one closely pursuing the other in the walks of science. From such a contention we augur much good will result. No less than five candidates for the prize medal appeared at the close of the session. The Essays having been most carefully passed in review by the Members of the Council individually, they unanimously agreed that the thesis bearing the motto, No. 179, "*Felix qui potuit rerum cognoscere causus*," richly merited the reward. On removing the envelope, its author was perceived to be Mr. JOHN STEVENSON, of Whitby.

As, again, no member of the profession had thought it worth his while to forward an Essay, although the subject proposed was well worthy of the employment of his pen, it was resolved that a second medal should be awarded for the second best paper received from the students; when the council as unanimously agreed that the one bearing the motto, "*Detur Digniori*," deserved the prize. Its author was Mr. J. FRYER, of Fleetham.

Thus the Council have performed a pleasing duty of rewarding merit; and they sincerely hope, that, by the little liberality they have been enabled to shew, a stimulus will be communicated to succeeding students to become competitors in this noble arena: for what so honourable as a trophy borne away from many compeers, each striving to gain the prize?

It has been elsewhere said by me, that science is built upon an accumulation of facts, some of which, when isolated, may appear

but of little worth, nevertheless the most trifling by which it is aided is deserving of record. We are therefore indebted to Mr. Bowles, of Abergavenny, for having forwarded for inspection a set of hobbles, in which some improvements had been made by him; also for another set invented by him, and designated cross-hobbles, these being used for securing the horse or cow during the minor surgical operations.—To Mr. Hall, for a method by which the steel tips for shoes can be more easily and expeditiously made.—To Mr. Birkett, for a series of tin bottles used by him for giving of draughts.—To Mr. Evans, student, for many instruments in one, employed for the removal of a shoe, when the assistance of the smith is not at hand.—To Mr. Woodger, for an improved neurotomy knife.—To Mr. Toll, for a set of splints used by him in cases of open knee joints;—and to Mr. Hollingworth, for a pair of improved refrigerators for the feet of the horse.

During the session fifty-two Members have been elected, and the number of Honorary Associates and Corresponding Members has been augmented by the addition of those from whom the Association has been promised support, and by whom its respectability has been enhanced.

The Certificate of Membership has been awarded to twenty-three, of Fellowship to eleven, and of Honorary Fellowship to four.

Again the grim tyrant has not left us unmolested.

Sir A. P. Cooper, Bart., H.A.;

Mr. R. Lucas, sen., Liverpool;

Mr. E. H. Stones, Newark;

Mr. G. Wilkes, London;

Mr. S. W. Battie, Sheffield;

have been taken from our numbers. Each in his narrow cell is now sleeping the cold sleep of death, from which no power shall awake them, until the trumpet of the archangel shall send forth its solemn sound, and call the assembled world to judgment; when he "shall set his right foot upon the sea, and his left foot on the earth, and with uplifted hand, swear by Him that liveth for ever and ever, that time shall be no longer."

"Thus friend after friend departs:

Who has not lost a friend?"

To the LIBRARY some additions have been made by purchase, and the donations have been as follow:—

By W. C. SPOONER, Esq.:—

His work on the Structure, Function, and Diseases of the Foot and Leg of the Horse.

PROFESSOR RAINARD:—

Traite de Pathologie et de Thérapeutique Générales Vétérinaires, vol. 1 and 2.

Professor MAGNE:—

Rapport sur l'Épizootic Aptheuse que regne dans le Canton de Thizy.

THE SOCIETE VETERINAIRE DES DEPARTEMENT DU CALVADOS ET DE LA MANCHE:—

Memoires de la Société, parts No. 1, 2, 3, 4, 5, 6, 7.

M. LECOQ:—

Memoires sur une Maladie particulière aux Poulains.

Memoire sur la Mammite (Mastrite Inflammation des Mammelles) considérée dans la Vache.

Memoire sur le part laborieux considéré dans les Grands Animaux Domestiques.

THE SOCIETE VETERINAIRE DU DEPARTEMENT DU FINISTERE:—

Typhus chez les Animaux Domestiques, par J. M. Eléouet.

Memoire sur les Races Equestres et Bovine du Département au Finistère.

Considerations sur l'Etat des Etalons Royaux dans les 4 Stations de l'Arrondissement de Malaix.

Rapport sur l'Etat actuel de la Confection du Buerre, &c.

Observations sur l'Etat actuel des Prairies de l'Arrondissement, &c.

Annales de la Société Veterinaire du Département du Finistère. 1840

Statuts de Société, &c.

Mr. G. COOKE:—

Granger's Elements of General Anatomy.

Mr. R. H. DYER:—

Anatomie Descriptive, par Cloquet.

Professor RIGOT:—

His Work, L'Ecole Royale Vétérinaire d'Alfort.

Traité Complet de l'Anatomie des Animaux Domestiques, Première Livraison.

ERASMUS WILSON, Esq.:—

The Anatomist's Vade Mecum: a System of Human Anatomy.

Professor MAGNE:—

Multiplication, Élevé, Entretien, et Engraissement du Porc.

Recherches sur les Fromageries de Société, &c.

Mr. J. DAWBER:—

A copy of his Essay on Moschotocic Adynamic Fever in Cows.

The Librarian reports that the books have been more in request during the past than any antecedent session. This encouraging fact speaks for itself.

Before concluding this Report—and it may be the last I shall offer—I will revert to a subject alluded to at its commencement, for it is one I have frequently deplored the existence of.

The murky cloud that so frowningly has hung over our horizon from almost the beginning, portending evil, hangs there still. Now and then a sunbeam has pierced it, and awakened hope of its dispersion; but it has been only to heighten our disappointment, and by the contrast to darken its aspect.

When will the time come that the metropolitan members of our common profession will give us their oft-solicited presence at our meetings? With only one or two noble exceptions have any of them during the past session thought us at all worthy of notice. Even our esteemed—may we not say venerable?—counsellor and guide, whose advice we followed from the beginning, no longer mingles in our debates, and has almost ceased to appear among us. Thus has he given cause to our enemies to say, “Ha! ha! it is as we said it would be. A little longer, and our prognostications will prove true.” We may, however, continue to disappoint them; still, on the part of our friends such conduct, we opine, is not in accordance with either the letter or the spirit of the Association; and I fear it will ultimately prove subversive of its best interests, if not of its very existence.

Shall it be said that, having firmly established the institution in the estimation of the profession—and as a proof, we refer to the support we are constantly receiving from them—and for five years maintained it, without a jarring note or the least discordant sound being heard; when, too, to be enrolled among its members was considered by our continental brethren an honour, and they were proud to contribute to it the fruits of their intellectual labours;—shall it be said, that a spirit of disunion sprang up, and an unaccountable apathy came over us, so that even those who so kindly and so oft had attended our meetings ceased to do so, and felt no longer any interest in our proceedings, from our discussions becoming “flat, stale, and unprofitable?” LET IT NOT BE.

What have we been guilty of to merit this neglect? If we have done that which is wrong, tell us of our faults, that we may correct them. We are not incorrigible. Is it thus a zeal is shewn for the advancement of veterinary science? Is it thus that kindliness of feeling is manifested, which it is most desirable should always prevail? Is it lovely to see such an estrangement among the members of a profession yet in its infancy? How can professional friendship be more effectually implanted than by the elder associating with the junior members? And does not the estrangement in after-life widen? And is not this in part—ay,

and in great part too—the cause of the little want of unity that exists in the profession as a body? This is seen and lamented when a question in which all should be agreed, because it is for the benefit of all, is brought forward. Even soul-melting Charity finds but few to welcome her, and by the many she is received with cold and suspicious looks, and thrust and shouldered out.

Would that those on whom the eyes of the profession are fixed reflected on these things. Would that they could see that this is an evil, and a growing one. I, however, say no more, for I wish not to offend; nor would I court by flattery, nor deceive. *I at once confess I dislike and I fear these workings.* May my fears never be realized; but, like a giant refreshed with new wine, so may the Association shake off the lethargy that has come over it, and by unity of purpose and determination accomplish the great end presaged at its commencement.

My desire is to stimulate each and all to increased energy, and to benefit a Society which I believe is calculated more than any other means to implant right principles and advance veterinary science.

It is gratifying to be enabled to record, that, during the past session we have received more than ordinary encouragement from our provincial friends; and while we are grateful for it, we confidently hope, not only for its continuance, but its increase. We have received many promises, and have no doubt of their fulfilment.

I will now conclude with the consolatory words of our immortal bard, hoping they may be even more than realized by us, for, although cast down, we do not yet despair.

“Our ills do but wait
Upon our blessings, as the Ethiop,
Swart eunuch! on the Sultan's sunless fair,
Making grace goodlier.”

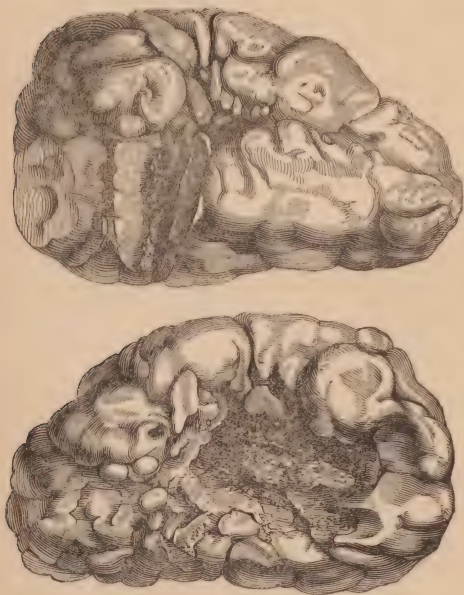
FINANCIAL STATEMENT.

<i>Cr.</i>				<i>Dr.</i>			
	£	s.	d.		£	s.	d.
By Balance last Session...	11	2	11	To Books for Library....	14	14	7
Balance on Dinner....	1	7	0	Periodicals	6	9	5
Balance on Bust Fund	3	9	0	Binding Books.....	10	12	10
Members' Fees.....	54	12	0	Printing Rules, &c....	11	3	6
Members' Fines.....	2	0	6	Printing Certificates..	4	4	0
				Copies of "Proceedings," for Foreign Societies.....	4	0	0
				Prize Medals.....	6	0	0
				Carriage, Portorage,			
				Postages, &c.....	4	12	10
				Balance.....	10	14	3
	£72	11	5		£72	11	5

W. J. T. MORTON, Secretary.

Thanks having been unanimously voted to the officers of the Association, and carried by acclamation, the session was closed.

OSSIFICATION OF THE BRAIN OF THE COW.



The Editors hasten to enclose this singular production. It ought to have been found in page 273, but circumstances over which they had no control prevented it.

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